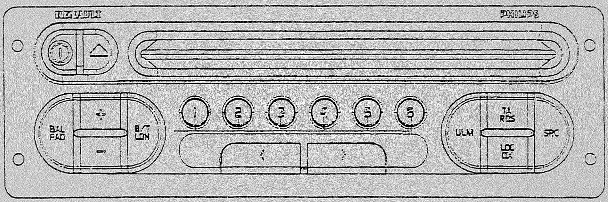
CD car radio 22DC479/62

Service
Service
Service



ERSATZTEILE
für Philips Car Systems
erhalten Sie bei:
KiVi Service GmbH
Windmühlenstr. 41 · 31178 Giesen/Emmerke
Tel.: 0 51 21 / 6 00 20 · Fax 0 51 21 / 60 02 54

For repair information of the CD-player see Service Manual of the CDM-M2 mechanism 5312

Service Manual

12 V

Contents | page

Control - Connections 2
Technical data 3
Servicing hints 4
Security code - Keyboard test 5-5a
Checks - IC pinnings 6-6a
Tuner part schematic diagram 7-7a
Front part schematic diagram 8-8a
Front PWB layout - Technician's remarks 9-9a
Power Supply part 1 schematic diagram 10-10a
Power Supply part 2 schematic diagram 11-11a
Main PWB layout (Top view) 12-12a
Main PWB layout (Bottom view) 13-13a
Sound Process part schematic diagram 14-14a
Power part schematic diagram 15-15a
Microcontroler part schematic diagram 16-16a
Tape part schematic diagram 17-17a
Exploded view / Mechanical partslist 18-18a
Electrical partslist 19-20-21-22

COMPACT
disc
DIGITAL AUDIO

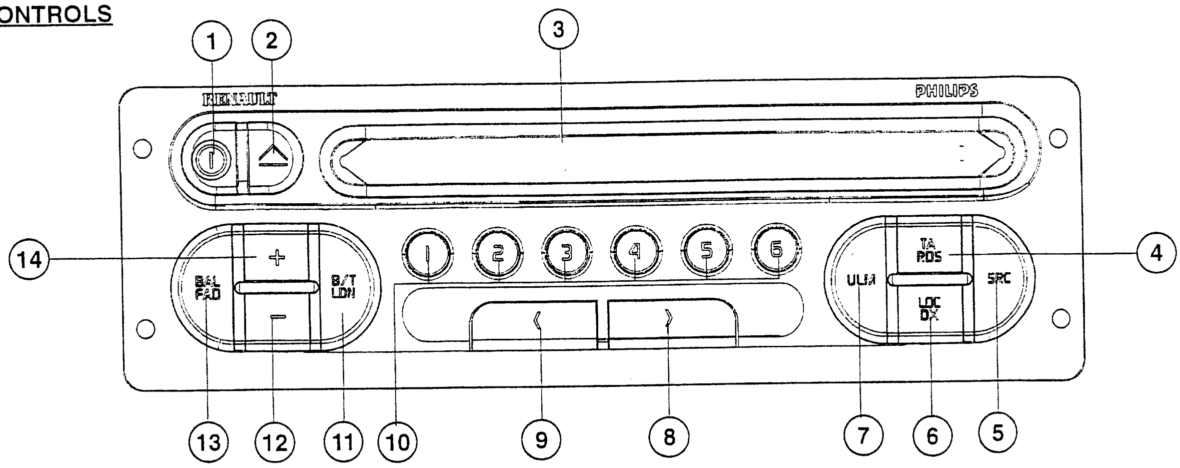
CLASS 1
LASER PRODUCT

Published by Philips Car Systems Printed in the Netherlands © Copyright reserved Subject to modification 4822 725 25863

PCS 98 339

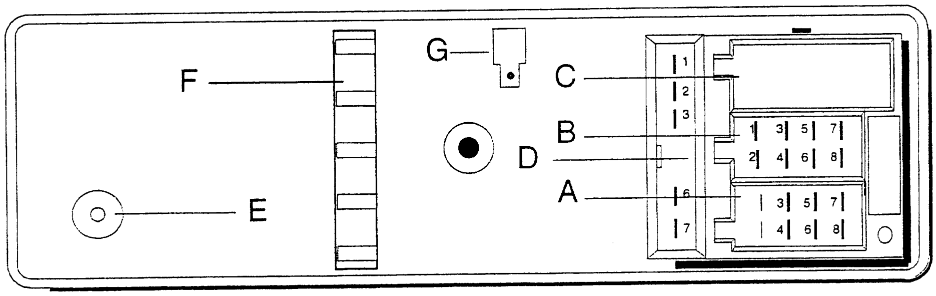
PHILIPS

CONTROLS


1
2
3
RENAULT
PHILIPS
14
BAL FAD
+
−
B/T LDN
1
2
3
4
5
6
‹
›
ULM
TA RDS
LOC DX
SRC
4
13
12
11
10
9
8
7
6
5

1	ON / OFF	8	SEARCH UP
2	DISK EJECT	9	SEARCH DOWN
3	DISK OPENING	10	PRESETS 1,2,3,4,5,6
4	TRAFFIC ANNOUNCEMENT / RDS	11	BASS / TREBLE / LOUDNESS
5	SOURCE	12	VOL -
6	DX MODE / LOCAL MODE	13	BALANCE / FADER
7	BAND	14	VOL +

CONNECTIONS


F
G
C
B
D
A
E
1
2
3
6
7
1 3 5 7
2 4 6 8
3 5 7
4 6 8

A1	NO CONNECT
A2	NO CONNECT
A3	MUTE RADIO (0V)
A4	+ PER. FUS. EXT : 15A
A5	+ ELEC ANTENNA .
A6	+ LIGHTING
A7	+ ACC. FUS. EXT : 15A
A8	GROUND

B1	REAR RIGHT	+
B2	REAR RIGHT	-
B3	FRONT RIGHT	+
B4	FRONT RIGHT	-
B5	FRONT LEFT	+
B6	FRONT LEFT	-
B7	REAR LEFT	+
B8	REAR LEFT	-

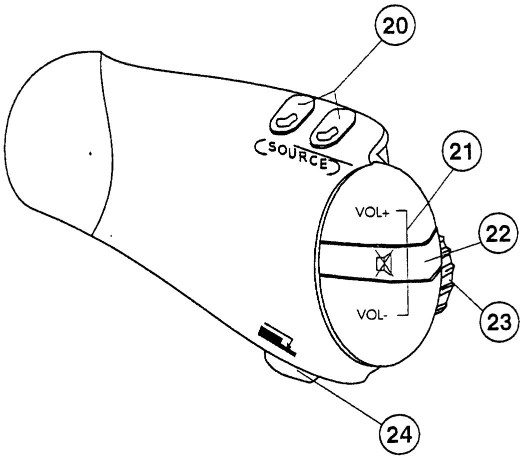
D1	DATA I^2C
D2	CLOCK I^2C
D3	MRQ I^2C
D4	NO CONNECT
D5	NO CONNECT
D6	RADIO ON
D7	GROUND

E : AERIAL PLUG

F : FASTENING CABLE

G : GROUND LUG

REMOTE CONTROL



20	Change waveband/source	
21	Vol , Bass, Treble, Balance, Fader + and - when corresponding function activated	
22	In code entry mode: SP : Validation digit Sec Code LP : Validation Sec Code	All others modes: Mute / Demute
23	In code entry mode: Selection digits Sec Code	Changing preset / Track selection
24	In code entry mode: SP : Validation digit Sec Code LP : Validation Sec Code	In radio mode: SP : search UP LP : Starts Autostore

SP : Short press LP : Long press (>2s)

TECHNICAL DATA

GENERAL

Power supply	:14.4V DC
Dimensions	:182x165x53 mm
Security code	: Yes
Remote control	: Yes
Remote display	: Yes

RADIO

LW	: 153-279 KHz
MW	: 531-1629 KHz
FM	: 87.5-108 MHz
IF-AM (1/2)	: 10.7 MHz/450 KHz
IF-FM (1/2)	: 72.2 MHz/10.7 MHz
Sensivity 26dB S/N	: <45 μV (LW) : <30 μV (MW) : 3.4 μV (FM)
Limitation α-3dB	: 3μV<L<15μV

CD

CD mechanism	:CDM-M2
Crosstalk at 1KHz	:60 dB
16-20KHz	:50 dB

AMPLIFIER

Output power	: 4x15 W / 4 Ω (THD = 10%)
Fader control	: ≥30 dB
Balance control	: ≥30 dB
Source separation	: ≥60 dB

ESD

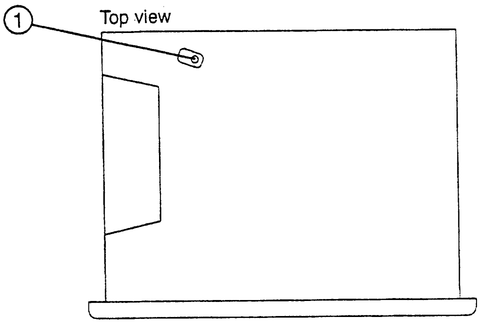
WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

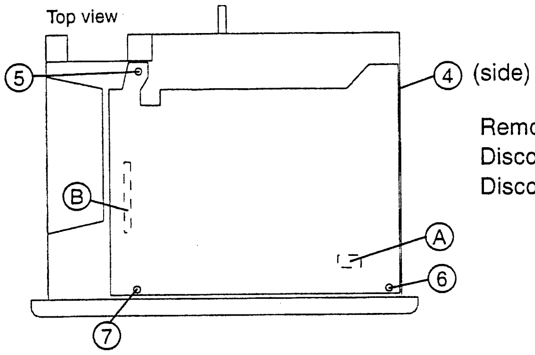
ESD equipment available:

Anti-static table mat large 1200X650X1.25mm	4822 466 10953
small 600X650X1.25mm	4822 466 10958
Connection box (1Mohm)	4822 395 10223
Extendible ~~ca~~ cable (to connect wrist band to connection box)	4822 320 11307
Connecting cable (to connect table mat to connection box)	4822 320 11305
Earth cable (to connect any product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 310 10671
wristband tester	4822 344 13999

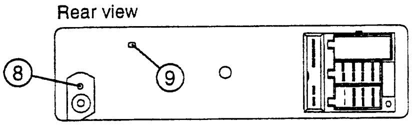
REMOVING THE PWB



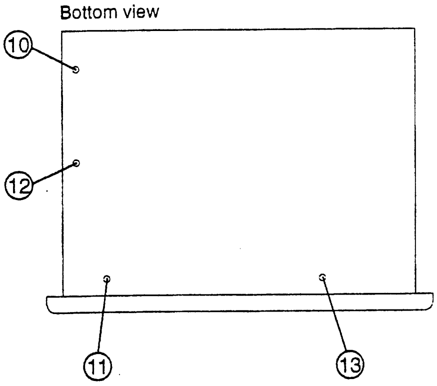
Remove the cover top (screw **1**) and the cover bottom


Top view
⑤
④ (side)
Ⓑ
Ⓐ
⑥
⑦

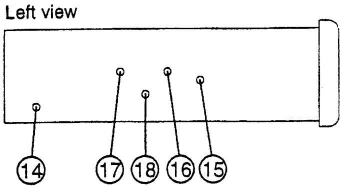
Remove the deck (screws **4**,**5**,**6** and **7**)
Disconnect the **A** connector
Disconnect the **B** connector


Rear view
⑧
⑨

Remove the antenna plug bracket (screws **8**, unsolder solder pad)


Bottom view
⑩
⑫
⑪
⑬

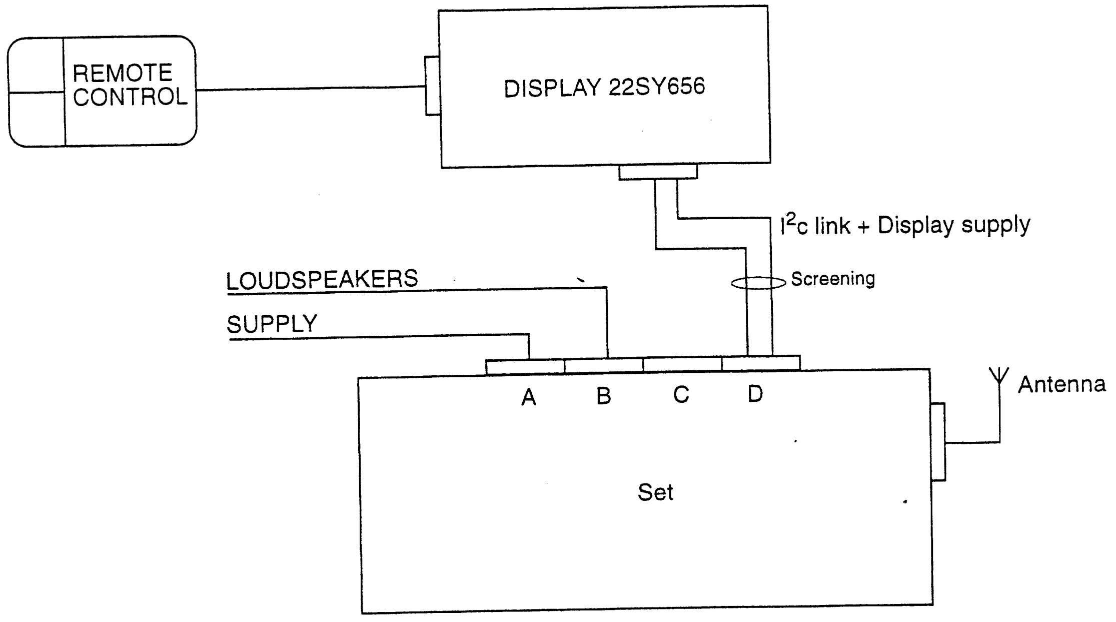
Remove the main PWB (screws **9** to **18**)


Left view
⑭
⑰
⑱
⑯
⑮

22DC479/62

These sets are parts of a system, composed of the following parts:
1)- The set 22DC479/62
2)- A remote control + cable.
3)- A remote display 22SY656/62 or 62X.(A1+ display)
4)- A cable link between the set (connector D) and the display.

-IN CASE YOU NEED PARTS OF THIS SYSTEM, PLEASE CONTACT LOCALLY RENAULT TO GET INFO ABOUT THESE PARTS.



This set is protected by a security code. **THE CODE CAN ONLY BE ENTERED VIA THE REMOTE CONTROL.**

Entering the code:
-) Press the On/Off key to switch on the set. 0000 will appear on the display.
-) To select the four digits of the code:
- Adjust the flashing digit with the thumbwheel on the remote control.
- Press the [22] key or 24] key on the remote control to change the digit.
-) Press the [22] key or [24] key for at least 2 seconds to validate the code.
When the code is activated a bleep will be heard.

Example : you want to enter the code 7637

	Turn the thumbwheel Press [22] or [24]	Turn the thumbwheel Press [22] or [24]	Turn the thumbwheel Press [22] or [24]	Turn the thumbwheel Press [22] or [24]	Press [22] or [24] for at least 2 seconds
0000	7000	7600	7630	7637	Last heard frequency

2 - Keyboard test

Starting the test: press P3 and ON.

"T" is displayed to request keyboard test. For each key pressed, the number of the pressed key appears, according to the table shown below. When all 17 keys have been pressed, "TEST OK" message is displayed.
This test can be aborted at any time by switching the set OFF.

number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
key	CD eject	BAL FAD	+	-	BAS TRE	Pr 1	Pr 2	Pr 3	Pr 4	Pr 5	Pr 6	ULM	TA	DX	SRC	<	>

If all is right, the display shows "KEYS OK"

3 - Check sum and Running times (Multiples of ten minutes)

At the end of the keyboard test, press P3 to start this test.
The display will show in order, during 5s each :
1) the checksum calculated from ROM content: CSM A1B2 (example)
2) the running time in tuner mode: TU . . . .
3) the running time in cassette mode: TA . . . .
4) the running time in Traffic Announcement TR . . . .
5) the running time in Telephone Call SP . . . .
6) the total running time TOT . . . .
7) the running time in nominal mode I²C NOM . . . .
These indications are displayed in a loop. To end the test, switch Off the set.

3 - Check sum only

Press P5 and ON
The display shows: CSM A1B2 (example)

4 - Mixed mode

Press P2 - P5 and ON
The set starts in mixed mode, in normal radio but with a beep and the display showing CODE every 3 sec.
After 2 minutes, the display shows 0000, and you must enter the code according to the procedure.
The only way to exit this mode is to enter the code.

CHECKS AND ALIGNMENTS

No alignment is needed for radio part. IC96 tuner is pre-aligned.

For all measurement, please refer to "General Check & Alignment procedures for Car Systems' 4822 725 25456, unless otherwise stated.

Checks:

- Supply voltages (set Off)

SET OFF	Voltage	Current + Acc ON	V reset Pin 4 µP	Vdd Pin 40 µP	V hold Pin 8 µP	Current + Acc OFF
Acc supply	+14.4V	< 3mA	min Vdd x 0.7	min 4.5V max 5.5V	max Vdd x 0.3	< 1.5mA

- Supply voltages (set On)

V reset pin 4 µP	V pin 40 µP	V hold pin 8 µP	V 5V E 7417	V 8.5V E 7418	V EEprom pin 8
max Vdd x 0.7	min 4.5V max 5.5V	min Vdd x 0.7	min 4.7V max 5.4V	min 8.0V max 8.9V	min 4.5V max 5.5V

- Reference oscillator frequencies

device	µP 7500	SAA6579 7260
pin	3	13
frequency	8 MHz 0.5%	4.332 MHz 20ppm

CD part

Audio Signal Disk 1 4822 397 30184	Crosstalk : Disk 1 track 67 to 71	limit : < -60dB	nominal :< -30dB

Test CD	Test	Result
Eccent-music 150um 4822 397 30279	Insert disk and play track 01	No failure
Vertical deviation 4822 397 30282	Check loading, display of number of tracks and total time. Select track no 9 time 00.20 listen to the disk during 4 seconds	no electrical nor mechanical noise

FM part

- Demodulated FM levels

Input	Output of IC96 (pin 15 & 16)
98 MHz	300 mV ± 50 mV

- Limiting point α-3dB

Range	Input	min	nominal	max
87.5 to 108 MHz	1Khz	4µV	7µV	12µV

- Check of search levels

Search levels	Input	Dx: 7µV < X < 23µV Local : 120µV < X < 360µV
	98 MHz	

- Pause detector

f = 94MHz fm = 1KHz	Δf = 0.6KHz	Pin 6 of 7230 < 0.8V
	Δf = 3.5KHz	Pin 6 of 7230 > 2.0V

AM part

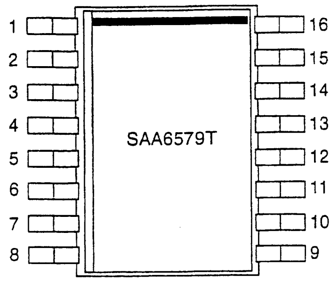
- Usable sensivity 26dB S/N

Sensivity at 26dB S/N	207 KHz	m = 30%	1KHz	< 38µV	typ 28
	1053 KHz			< 30µV	typ 22

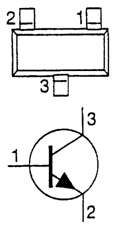
INTEGRATED CIRCUITS

SAA6579T Radio Data System demodulator

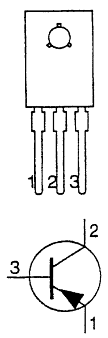
SYMBOL	PIN	DESCRIPTION
QUAL	1	quality indication output
RDDA	2	RDS data output
V_{ref}	3	reference voltage output (0.5 V_{DDA})
MPX	4	multiplex input signal
V_{DDA}	5	+5V supply voltage for analog part
V_{SSA}	6	ground for analog part (0V)
CIN	7	subcarrier input to comparator
SCOUT	8	subcarrier output for reconstruction filter
TCTR	9	test control
TEN	10	test enable
V_{SSD}	11	ground for digital part (0V)
V_{DDD}	12	+5V supply voltage for digital part
OSCI	13	oscillator input
OSCO	14	oscillator output
T57	15	57kHz clock signal output
RDCL	16	RDS clock output



BC847B

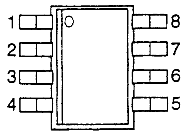


BD438



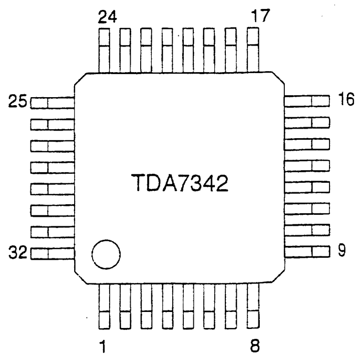
MC4558 Dual op amp

PIN	DESCRIPTION
1	Output 1
2	Inverting input 1
3	Non inverting input 1
4	Vcc -
5	Non inverting input 2
6	Inverting input 2
7	Output 2
8	Vcc +



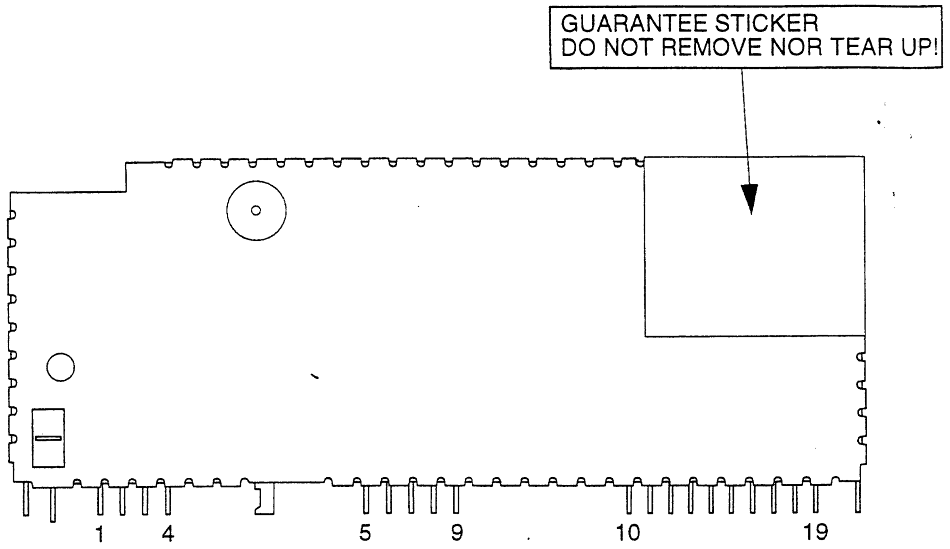
TDA7342 Digitally controlled audio processor

SYMBOL	PIN	DESCRIPTION	SYMBOL	PIN	DESCRIPTION
TR R	1	Treble control capacitor right	BIN L	17	Bass control input left
IN R	2	Input right	BOUT L	18	Bass control output left
OUT R	3	Output right	BIN R	19	Bass control input right
LOUD R	4	Input loudness, right control part	BOUT R	20	Bass control output right
IN R3	5	Input 3 right source (CD)	SM	21	Soft mute control
IN R2	6	Input 2 right source	OUT RR	22	Output rear right
IN R1	7	Input 1 right source	OUT LR	23	Output left right
MONO	8	Input mono source	OUT RF	24	Output right front
LOUD L	9	Input loudness, left control part	OUT LF	25	Output left front
CD GND	10	Ground input CD	DIG GND	26	Bus ground
IN L3	11	Input 3 left source (CD)	SDA	27	I2C Data
IN L2	12	Input 2 left source	SCL	28	I2C Clock
IN L1	13	Input 1 left source	CREF	29	Supply reference capacitor
CSM	14	Soft mute control capacitor	Vs	30	Supply voltage
IN L	15	Input right	GND	31	Ground
OUT L	16	Output left	TRL	32	Treble control capacitor left



IC96 MODULE

Not reparable module. Do not open and do not try to repair yourself!


GUARANTEE STICKER
DO NOT REMOVE NOR TEAR UP!
1
4
5
9
10
19

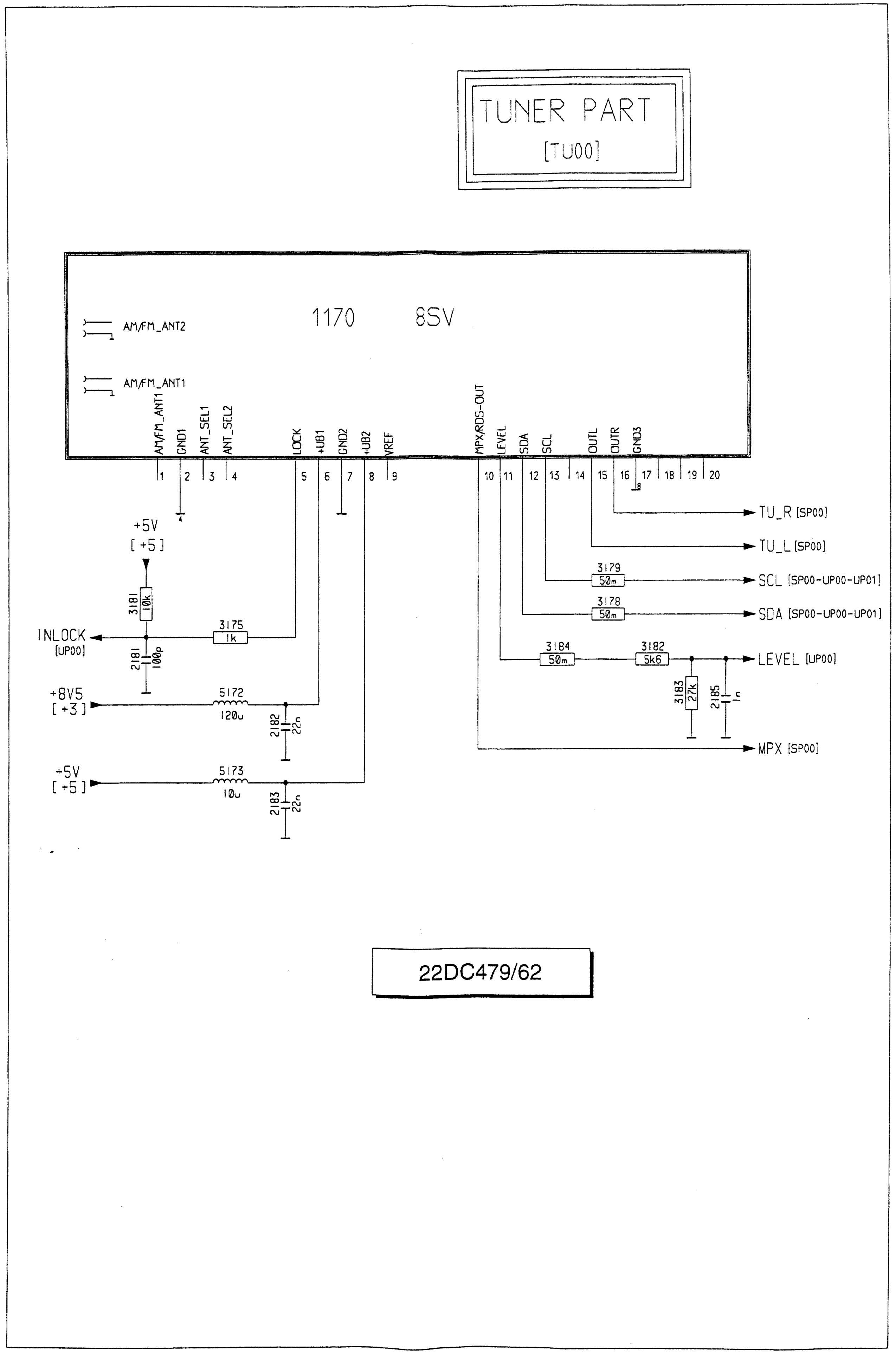
Connections

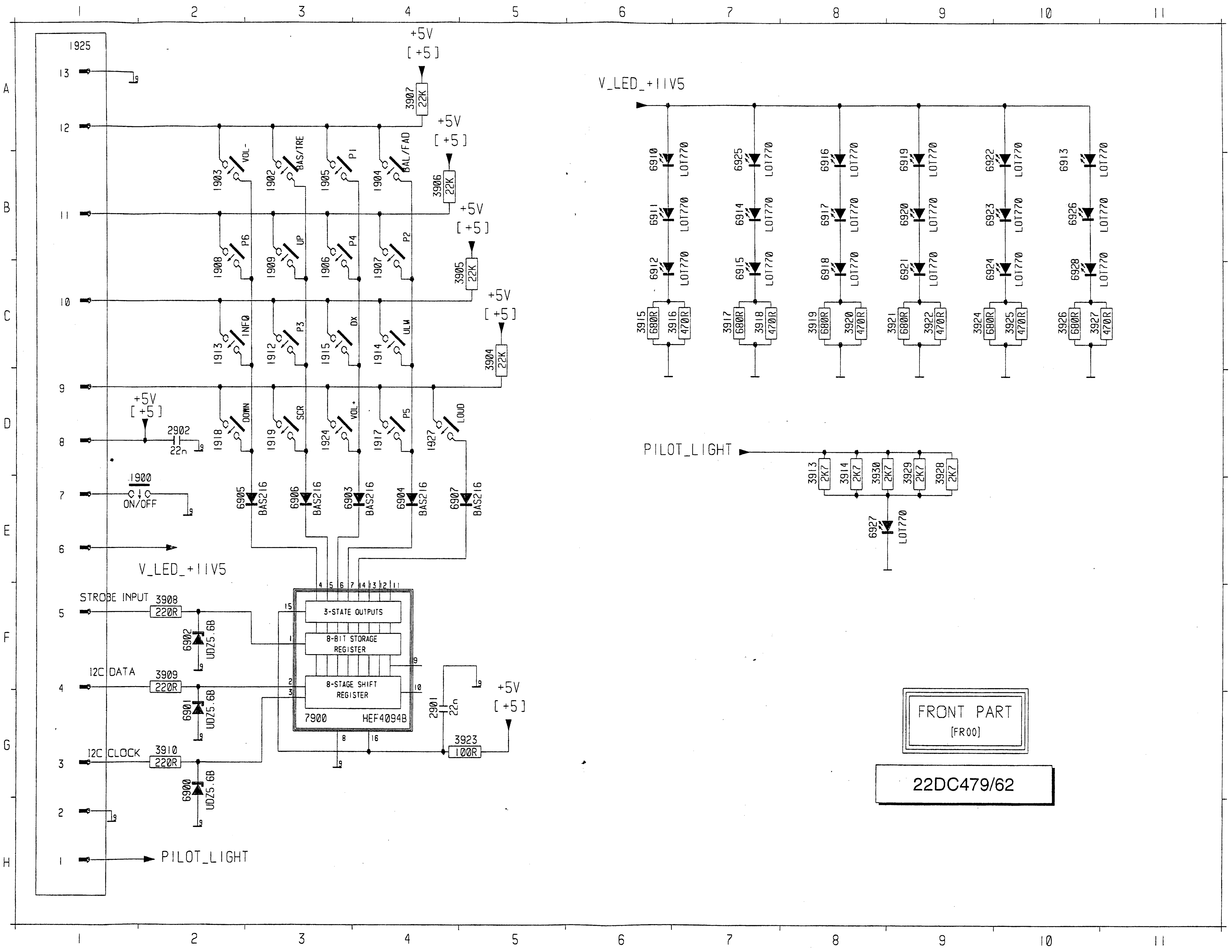
2	Ground
5	Inlock detector pin
6	Vcc 8.5V
7	Ground
8	Vcc 5.0V
10	Multiplex / RDS output signal
11	Level
12	I^{2}C SDA
13	I^{2}C SCL
15	tuner output L
16	tuner output R
17	Ground

Quick reference data:

1) AM part
- -Longwave/Mediumwave 144-1710 KHz (inclusive USA)
- -Shortwave 5850-6250 KHz - 49 meter band
- -AM double super concept
- -AM IF1 10.7MHz
- -AM IF2 450KHz
- -First VCO frequency above input signal frequency
- -Second X-tal oscillator frenquency below IF1
- -Usable sensivity α26dB MW = 14µV typ.

1) FM part
- -FM 87.5 - 108MHz
- -FM double super concept
- -FM IF1 72.2MHz
- -FM IF2 10.7MHz
- -First VCO frequency above input signal frequency
- -Second X-tal oscillator frequency below IF1
- -Usable sensivity α26dB =2.5µV typ.
- -THD 1mV δf=75KHz = 0.5% typ
- -Signal to noise ratio = 65dB typ
- -Locktime synthetizer <2mSec


TUNER PART
[TU00]
1170
8SV
AM/FM_ANT2
AM/FM_ANT1
AM/FM_ANT1
GND1
ANT_SEL1
ANT_SEL2
LOCK
+UB1
GND2
+UB2
VREF
MPX/RDS-OUT
LEVEL
SDA
SCL
OUTL
OUTR
GND3
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
+5V
[+5]
3181
10k
INLOCK
[UP00]
3175
1k
2181
100p
+8V5
[+3]
5172
120u
2182
22n
+5V
[+5]
5173
10u
2183
22n
TU_R [SP00]
TU_L [SP00]
3179
50m
SCL [SP00-UP00-UP01]
3178
50m
SDA [SP00-UP00-UP01]
3184
50m
3182
5k6
LEVEL [UP00]
3183
27k
2185
1n
MPX [SP00]
22DC479/62

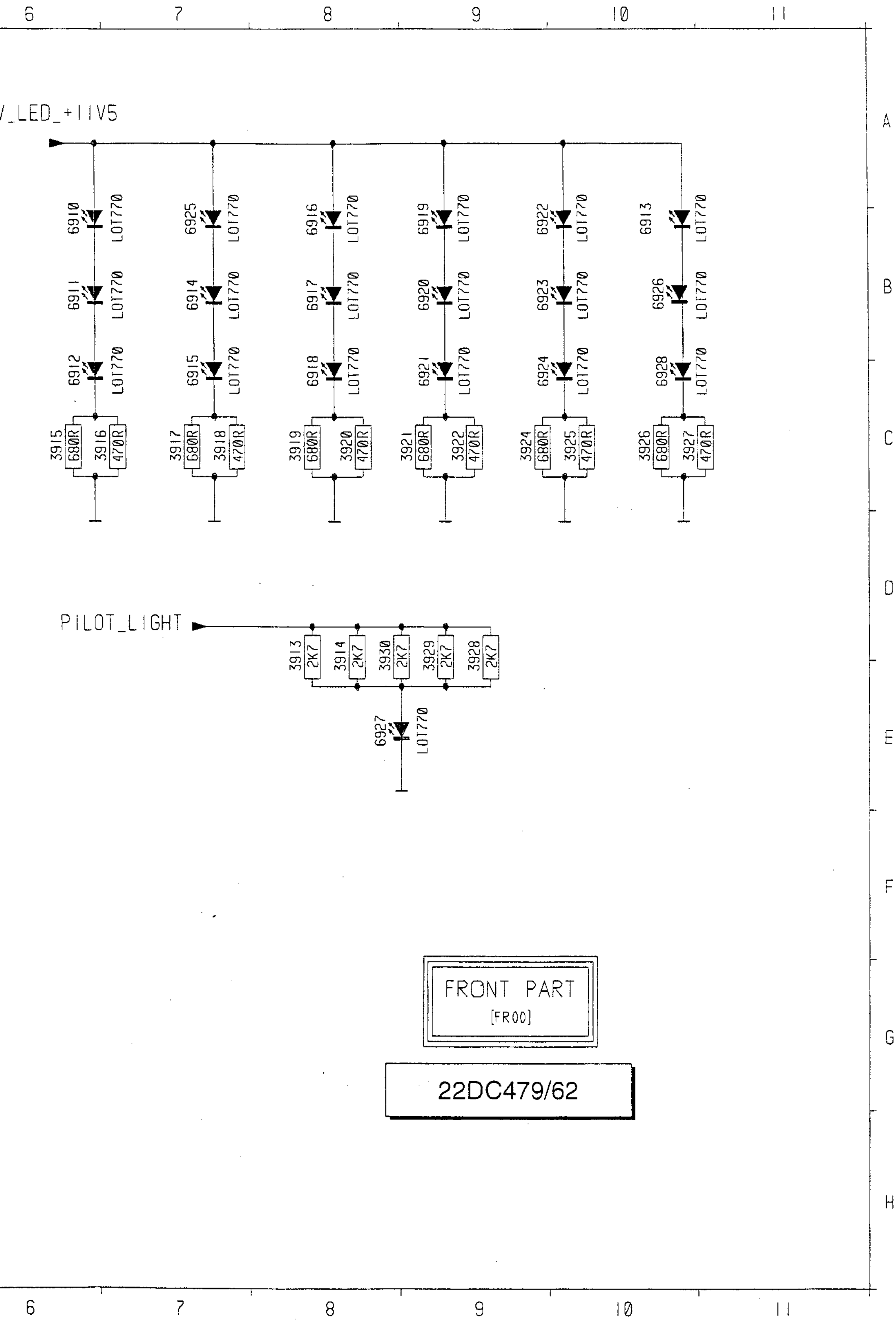

1925
13
12
11
10
9
8
7
6
5
4
3
2
1
+5V
[+5]
3907 22K
3906 22K
3905 22K
3904 22K
1903 VOL-
1902 BAS/TRE
1905 P1
1904 BAL/FAD
1908 P6
1909 UP
1906 P4
1907 P2
1913 INFO
1912 P3
1915 DX
1914 ULM
1918 DOWN
1919 SCR
1924 VOL+
1917 P5
1927 LOUD
2902 22n
1900 ON/OFF
6905 BAS216
6906 BAS216
6903 BAS216
6904 BAS216
6907 BAS216
V_LED_+11V5
STROBE INPUT
3908 220R
6902 UDZ5.6B
I2C DATA
3909 220R
6901 UDZ5.6B
I2C CLOCK
3910 220R
6900 UDZ5.6B
PILOT_LIGHT
3-STATE OUTPUTS
8-BIT STORAGE REGISTER
8-STAGE SHIFT REGISTER
7900 HEF4094B
2901 22n
3923 100R
6910 LOT770
6911 LOT770
6912 LOT770
6925 LOT770
6914 LOT770
6915 LOT770
6916 LOT770
6917 LOT770
6918 LOT770
6919 LOT770
6920 LOT770
6921 LOT770
6922 LOT770
6923 LOT770
6924 LOT770
6913 LOT770
6926 LOT770
6928 LOT770
3915 680R
3916 470R
3917 680R
3918 470R
3919 680R
3920 470R
3921 680R
3922 470R
3924 680R
3925 470R
3926 680R
3927 470R
3913 2K7
3914 2K7
3930 2K7
3929 2K7
3928 2K7
6927 LOT770
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11

FRONT PART
[FR00]

22DC479/62

1900	E 2
1902	B 3
1903	B 2
1904	B 4
1905	B 3
1906	C 3
1907	C 4
1908	C 2
1909	C 3
1912	C 3
1913	C 2
1914	C 4
1915	C 3
1917	D 4
1918	D 2
1919	D 3
1924	D 3
1925	A 1
1927	D 4
2901	G 4
2902	D 2
3904	C 5
3905	C 5
3906	B 4
3907	A 4
3908	F 2
3909	F 2
3910	G 2
3913	D 8
3914	D 8
3915	C 6
3916	C 7
3917	C 7
3918	C 7
3919	C 8
3920	C 8
3921	C 9
3922	C 9
3923	G 5
3924	C 9
3925	C10
3926	C10
3927	C10
3928	D 9
3929	D 9
3930	D 8
6900	G 2
6901	G 2
6902	F 2
6903	E 3
6904	E 4
6905	E 2
6906	E 3
6907	E 4
6910	B 6
6911	B 6
6912	C 6
6913	B 7
6914	B 7
6915	C 7
6916	B 8
6917	B 8
6918	C 8
6919	B 9
6920	B 9
6921	C 9
6922	B 9
6923	B 9
6924	C 9
6925	B10
6926	B10
6927	E 8
7900	G 3

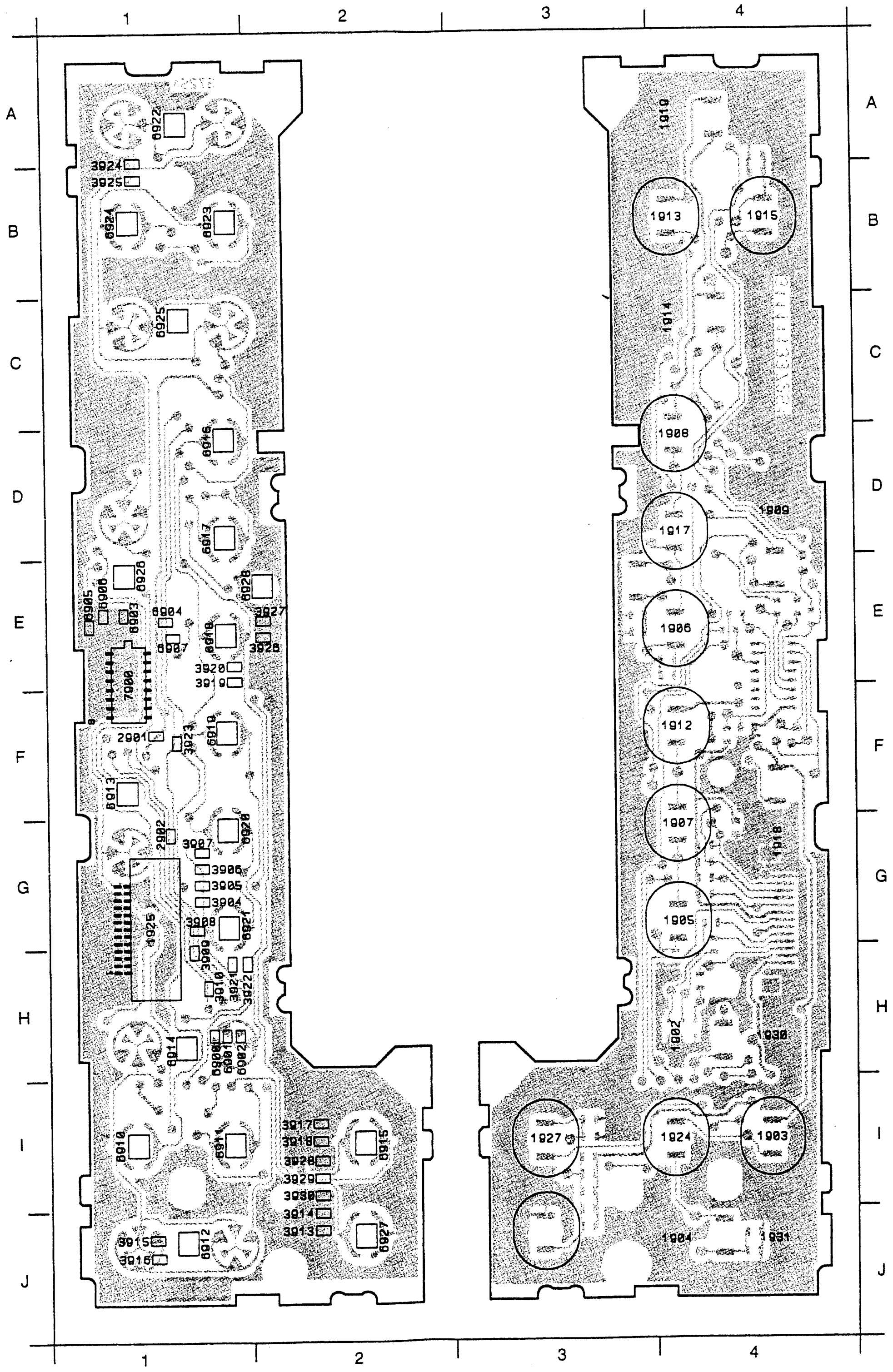
PCS 98 346


6
7
8
9
10
11
/_LED_+11V5
6910
6911
6912
6925
6914
6915
6916
6917
6918
6919
6920
6921
6922
6923
6924
6913
6926
6928
LOT770
3915 680R
3916 470R
3917 680R
3918 470R
3919 680R
3920 470R
3921 680R
3922 470R
3924 680R
3925 470R
3926 680R
3927 470R
PILOT_LIGHT
3913 2K7
3914 2K7
3930 2K7
3929 2K7
3928 2K7
6927
LOT770
FRONT PART
[FR00]
22DC479/62
A
B
C
D
E
F
G
H

1900	E 2
1902	B 3
1903	B 2
1904	B 4
1905	B 3
1906	C 3
1907	C 4
1908	C 2
1909	C 3
1912	C 3
1913	C 2
1914	C 4
1915	C 3
1917	D 4
1918	D 2
1919	D 3
1924	D 3
1925	A 1
1927	D 4
2901	G 4
2902	D 2
3904	C 5
3905	C 5
3906	B 4
3907	A 4
3908	F 2
3909	F 2
3910	G 2
3913	D 8
3914	D 8
3915	C 6
3916	C 7
3917	C 7
3918	C 7
3919	C 8
3920	C 8
3921	C 9
3922	C 9
3923	G 5
3924	C 9
3925	C10
3926	C10
3927	C10
3928	D 9
3929	D 9
3930	D 8
6900	G 2
6901	G 2
6902	F 2
6903	E 3
6904	E 4
6905	E 2
6906	E 3
6907	E 4
6910	B 6
6911	B 6
6912	C 6
6913	B 7
6914	B 7
6915	C 7
6916	B 8
6917	B 8
6918	C 8
6919	B 9
6920	B 9
6921	C 9
6922	B 9
6923	B 9
6924	C 9
6925	B10
6926	B10
6927	E 8
7900	G 3

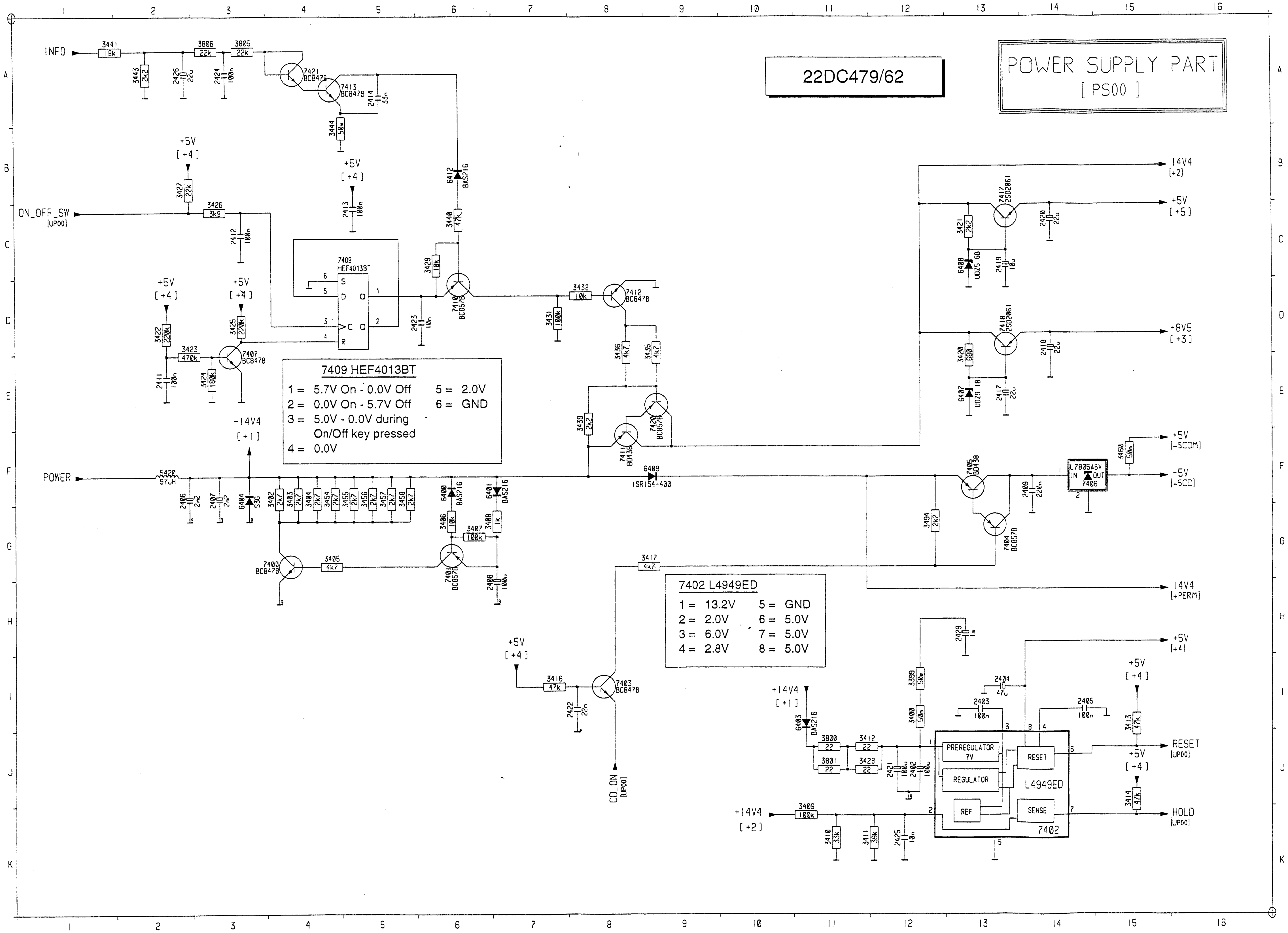
22DC479/62

FRONT PWB LAYOUT

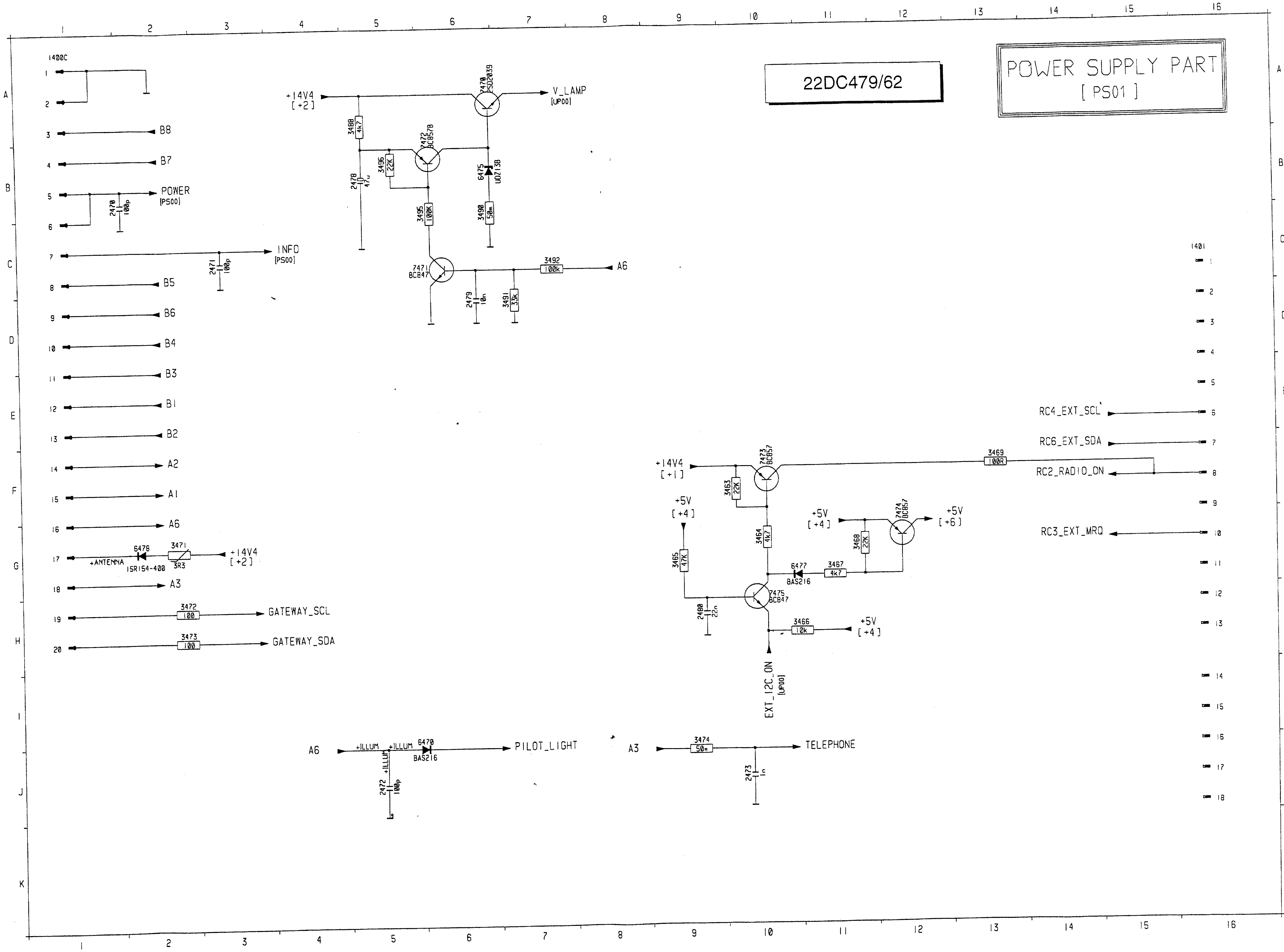

1
2
3
4
A
B
C
D
E
F
G
H
I
J
1919
1913
1915
1914
1908
1909
1917
1906
1912
1907
1918
1905
1902
1930
1927
1924
1903
1904
1931
6922
3924
3925
6924
6923
6925
6916
6917
6926
6905
6906
6903
6904
6928
3927
3926
6918
6907
7900
3920
3919
2901
3923
6919
6913
2902
3907
6920
3906
3905
3904
3908
6925
6921
3909
3910
3921
3922
6914
6900
6901
6902
3917
3918
3928
3929
3930
3914
3913
6915
6910
6911
3915
3916
6912
6927

1902	H	4
1903	I	4
1904	J	4
1905	G	4
1906	E	4
1907	G	4
1908	D	4
1909	D	4
1912	F	4
1913	B	4
1914	C	4
1915	B	4
1917	D	4
1918	G	4
1919	A	4
1924	I	4
1925	G	1
1927	I	3
1930	H	4
1931	J	4
2901	F	1
2902	G	1
3904	G	1
3905	G	1
3906	G	1
3907	G	1
3908	G	1
3909	H	1
3910	H	1
3913	J	2
3914	J	2
3915	J	1
3916	J	1
3917	I	2
3918	I	2
3919	E	1
3920	E	1
3921	H	1
3922	H	1
3923	F	1
3925	B	1
3926	E	2
3927	E	2
3928	I	2
3929	I	2
3930	I	2
6900	H	1
6901	H	1
6902	H	1
6904	E	1
6905	E	1
6906	E	1
6907	E	1
6910	I	1
6911	I	1
6912	J	1
6913	F	1
6914	H	1
6915	I	2
6916	D	1
6917	D	1
6918	E	1
6919	F	1
6920	G	1
6921	G	1
6922	A	1
3924	A	1
6923	B	1
6924	B	1
6925	C	1
6926	E	1
6927	J	2
6928	E	2

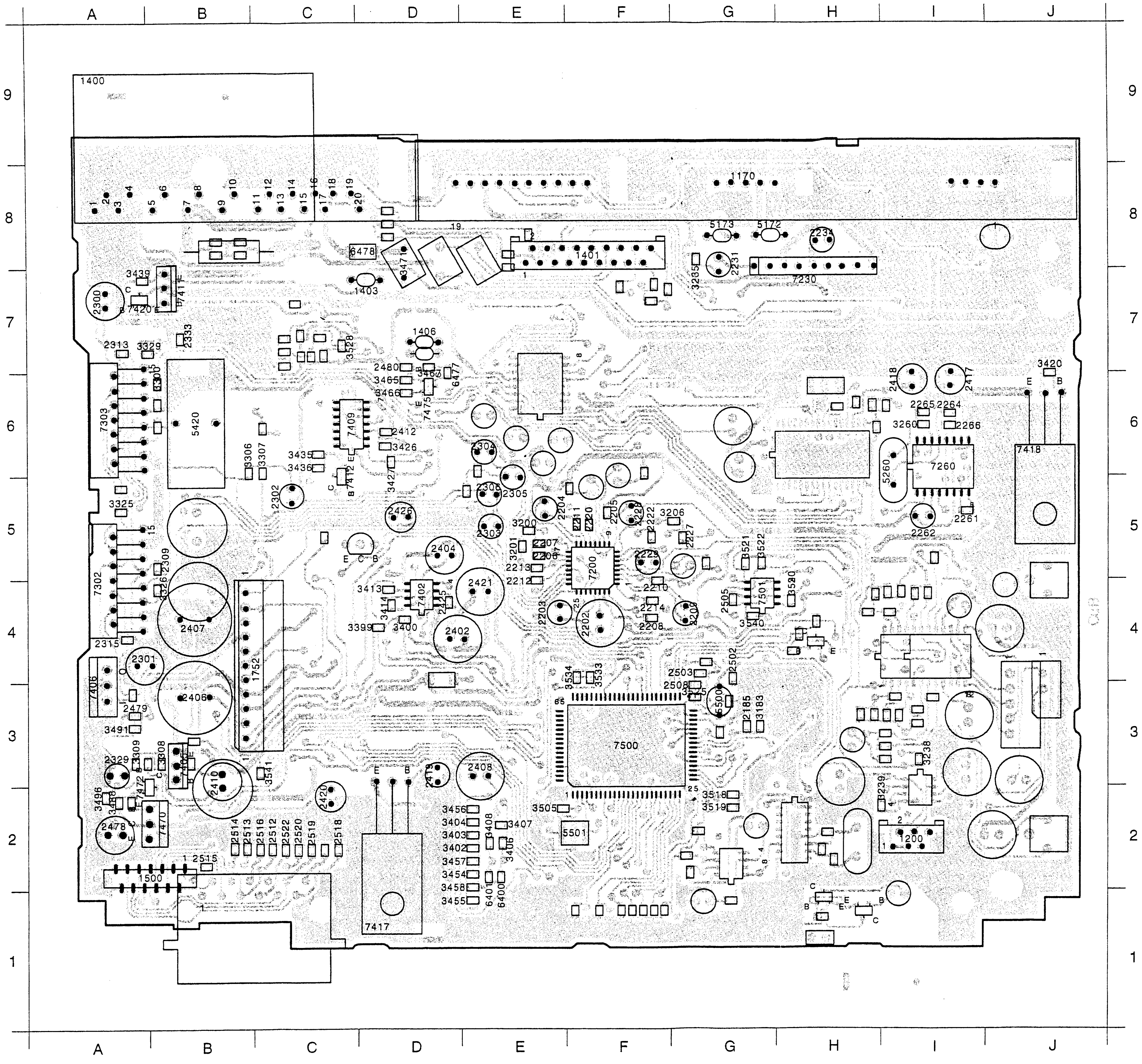
Technician's remarks


22DC479/62
POWER SUPPLY PART
[PS00]
INFO
ON_OFF_SW
[UP00]
POWER
CD_ON
[UP00]
14V4
[+2]
+5V
[+5]
+8V5
[+3]
+5V
[+SCDM]
+5V
[+SCD]
14V4
[+PERM]
+5V
[+4]
RESET
[UP00]
HOLD
[UP00]
+14V4
[+1]
+14V4
[+2]
7409
HEF4013BT
7409 HEF4013BT
1 = 5.7V On - 0.0V Off
2 = 0.0V On - 5.7V Off
3 = 5.0V - 0.0V during On/Off key pressed
4 = 0.0V
5 = 2.0V
6 = GND
7402 L4949ED
1 = 13.2V
2 = 2.0V
3 = 6.0V
4 = 2.8V
5 = GND
6 = 5.0V
7 = 5.0V
8 = 5.0V
PREREGULATOR 7V
REGULATOR
RESET
REF
SENSE
L4949ED
7402
L7805ABV
7406
7421 BC847B
7413 BC847B
7412 BC847B
7410 BC857B
7420 BC857B
7411 BD438
7407 BC847B
7400 BC847B
7401 BC857B
7403 BC847B
7417 2SD2061
7418 2SD2061
7405 BD438
7404 BC857B
6412 BAS216
6400 BAS216
6401 BAS216
6403 BAS216
6404 53G
6408 UDZ5.6B
6407 UDZ9.1B
6409 1SR154-400
5420 97µH

2402	J12	5420	F 2
2403	I13	6400	F 6
2404	I13	6401	F 6
2405	I14	6403	I11
2406	F 2	6404	F 3
2407	F 3	6407	E13
2408	H 6	6408	C13
2409	F14	6409	F 9
2411	E 2	6412	B 6
2412	C 3	7400	G 4
2413	C 5	7401	G 6
2414	A 5	7402	K14
2417	E13	7403	I 8
2418	D14	7404	G13
2419	C13	7405	F13
2420	C14	7406	F15
2421	J12	7407	E 3
2422	I 8	7409	C 4
2423	D 5	7410	D 6
2424	A 3	7411	F 8
2425	K12	7412	D 8
2426	A 2	7413	A 5
2429	H13	7417	C13
3399	I12	7418	D13
3400	I12	7420	E 9
3402	F 4	7421	A 4
3403	F 4		
3404	F 4		
3405	G 4		
3406	G 6		
3407	G 6		
3408	G 6		
3409	K11		
3410	K11		
3411	K11		
3412	J11		
3413	I15		
3414	J15		
3416	I 7		
3417	G 9		
3420	E13		
3421	C13		
3422	D 2		
3423	D 2		
3424	E 3		
3425	D 3		
3426	C 3		
3427	B 2		
3428	J11		
3429	C 6		
3431	D 7		
3432	D 8		
3435	D 9		
3436	D 8		
3439	E 8		
3440	C 6		
3441	A 1		
3443	A 2		
3444	B 4		
3454	F 4		
3455	F 5		
3456	F 5		
3457	F 5		
3458	F 5		
3460	F15		
3494	G12		
3800	J11		
3801	J11		
3805	A 3		
3806	A 3		


POWER SUPPLY PART
[PS01]
22DC479/62
1400C
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
B8
B7
POWER
[PS00]
2470
100p
INFO
[PS00]
2471
100p
B5
B6
B4
B3
B1
B2
A2
A1
A6
+ANTENNA
6476
1SR154-400
3471
3R3
+14V4
[+2]
A3
3472
100
GATEWAY_SCL
3473
100
GATEWAY_SDA
+14V4
[+2]
7470
PSD2039
V_LAMP
[UP00]
3488
4k7
7472
BC857B
3496
22K
2478
47u
6475
UDZ13B
3495
100K
3490
50m
7471
BC847
2479
10n
3491
33k
3492
100k
A6
+14V4
[+1]
7473
BC857
3463
22K
3469
100R
+5V
[+4]
3464
4k7
3465
47K
+5V
[+4]
3468
22K
7474
BC857
+5V
[+6]
6477
BAS216
3467
4k7
7475
BC847
2480
22n
3466
10k
+5V
[+4]
EXT_I2C_ON
[UP00]
A6
+ILLUM
+ILLUM
+ILLUM
6470
BAS216
2472
100p
PILOT_LIGHT
A3
3474
50m
TELEPHONE
2473
1n
1401
RC4_EXT_SCL
RC6_EXT_SDA
RC2_RADIO_ON
RC3_EXT_MRQ
A
B
C
D
E
F
G
H
I
J
K

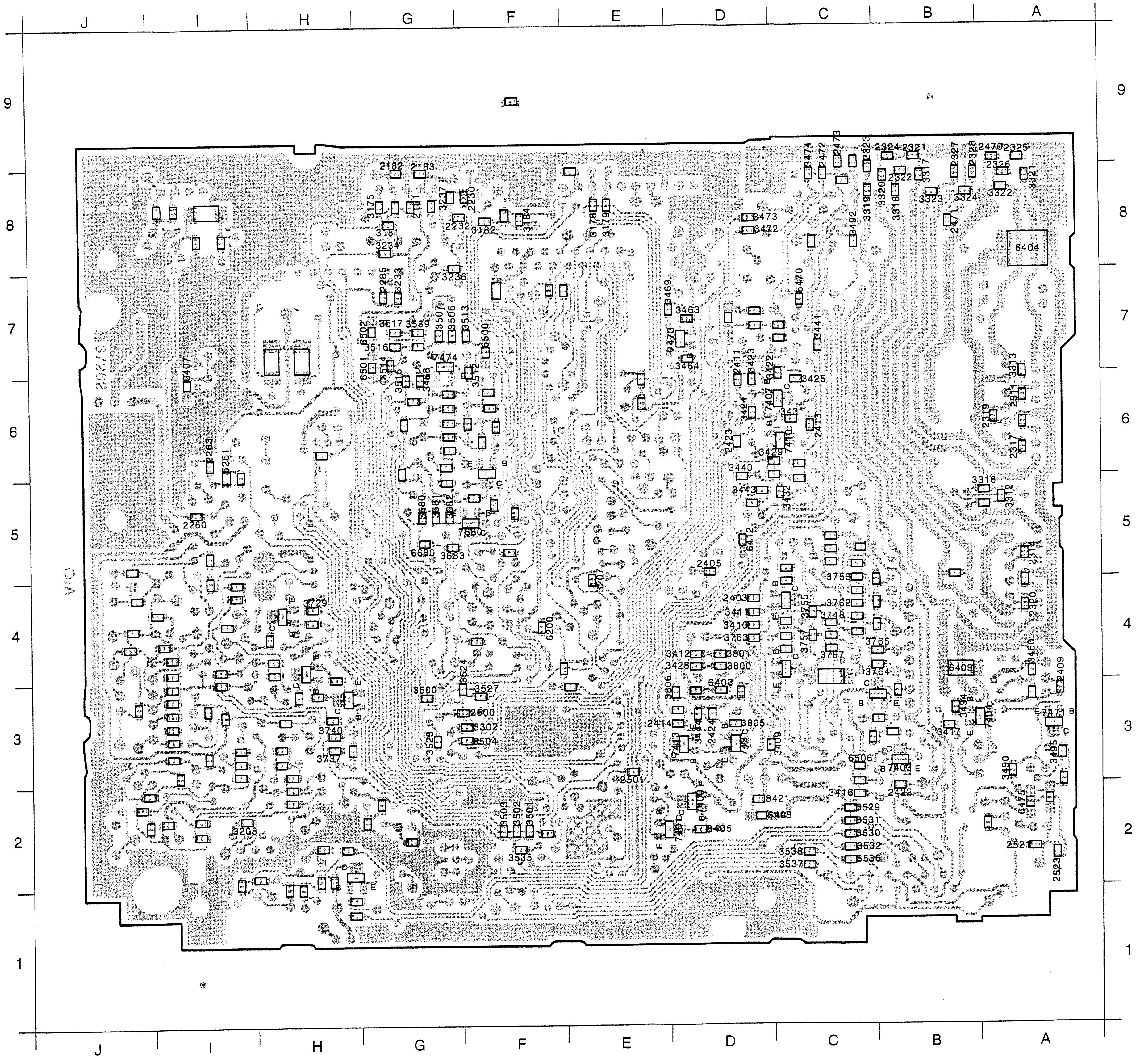
1400	A 1
1401	C16
2470	B 1
2471	C 3
2472	J 5
2473	J10
2478	B 5
2479	D 6
2480	H 9
3463	F10
3464	G10
3465	G 9
3466	H10
3467	G11
3468	G11
3469	F13
3471	G 2
3472	H 2
3473	H 2
3474	J 9
3488	A 5
3490	B 6
3491	D 7
3492	C 7
3495	B 6
3496	B 5
6470	J 5
6475	B 6
6477	G10
6478	G 2
7470	A 6
7471	C 6
7472	B 6
7473	F10
7474	G12
7475	H10


A
B
C
D
E
F
G
H
I
J
9
8
7
6
5
4
3
2
1
1400
1170
1401
1403
1406
1500
1752
7230
7260
7303
7302
7406
7409
7418
7417
7500
7200
7501
5420
5260
5501
2300
2407
2406
2402
2404
2421
2408
2410
2478
1200
3420
3439
2313
3329
3325
3491
2329
3496
2515

1170	G	8
1200	I	2
1400	B	8
1401	F	7
1403	D	7
1406	D	7
1500	A	1
1752	B	3
2185	G	3
2202	F	4
2203	E	4
2204	E	5
2205	F	5
2206	E	4
2207	E	5
2208	F	4
2209	G	4
2210	F	4
2211	F	5
2212	E	4
2213	E	4
2214	F	4
2220	F	5
2222	F	5
2227	G	5
2228	F	5
2229	F	4
2231	G	7
2234	H	8
2261	I	5
2262	I	5
2264	I	6
2265	I	6
2266	I	6
2300	A	7
2301	A	3
2302	C	5
2303	E	5
2304	E	6
2305	E	5
2306	E	5
2309	B	4
2313	A	6
2315	A	4
2329	A	2
2333	B	7
2402	D	4
2404	D	5
2406	B	3
2407	B	4
2408	E	2
2410	B	2
2412	D	6
2417	I	6
2418	I	6
2419	D	2
2420	C	2
2421	E	4
2425	D	4
2426	D	5
2478	A	2
2479	A	3
2480	D	6
2502	G	3
2503	G	3
2505	G	4
2508	G	3
2512	C	2
2513	B	2
2514	B	2
2515	B	2
2516	C	2
2518	C	2
2519	C	2
2520	C	2
2522	C	2
3183	G	3
3200	E	5
3201	E	5
3206	G	5
3235	G	7
3238	I	3
3239	H	2
3260	I	6
3300	B	6
3306	B	5
3307	C	5
3308	B	2
3309	A	2
3325	A	5
3326	B	4
3329	A	6
3399	D	4
3400	D	4
3402	E	2
3403	E	2
3404	E	2
3406	E	2
3407	E	2
3408	E	2
3413	D	4
3414	D	4
3420	J	6
3426	D	6
3427	D	5
3435	C	5
3436	C	5
3439	A	7
3454	E	1
3455	E	1
3456	E	2
3457	E	2
3458	E	1
3465	D	6
3466	D	6
3467	D	6
3471	D	7
3488	A	2
3491	A	3
3496	A	2
3505	E	2
3518	G	2
3519	G	2
3520	H	4
3521	G	4
3522	G	4
3525	G	3
3528	C	7
3533	F	3
3534	F	3
3540	G	4
3541	C	2
5172	G	8
5173	G	8
5260	I	5
5420	B	6
5500	G	3
5501	F	2
6400	E	1
6401	E	1
6477	D	6
6478	D	7
7200	F	4
7230	H	7
7260	I	5
7302	A	4
7303	A	6
7402	D	4
7405	B	2
7406	A	3
7409	C	6
7411	B	7
7412	C	5
7417	D	2
7418	J	6
7420	A	7
7470	A	2
7472	A	2
7475	D	6
7500	F	3
7501	G	4

22DC479/62

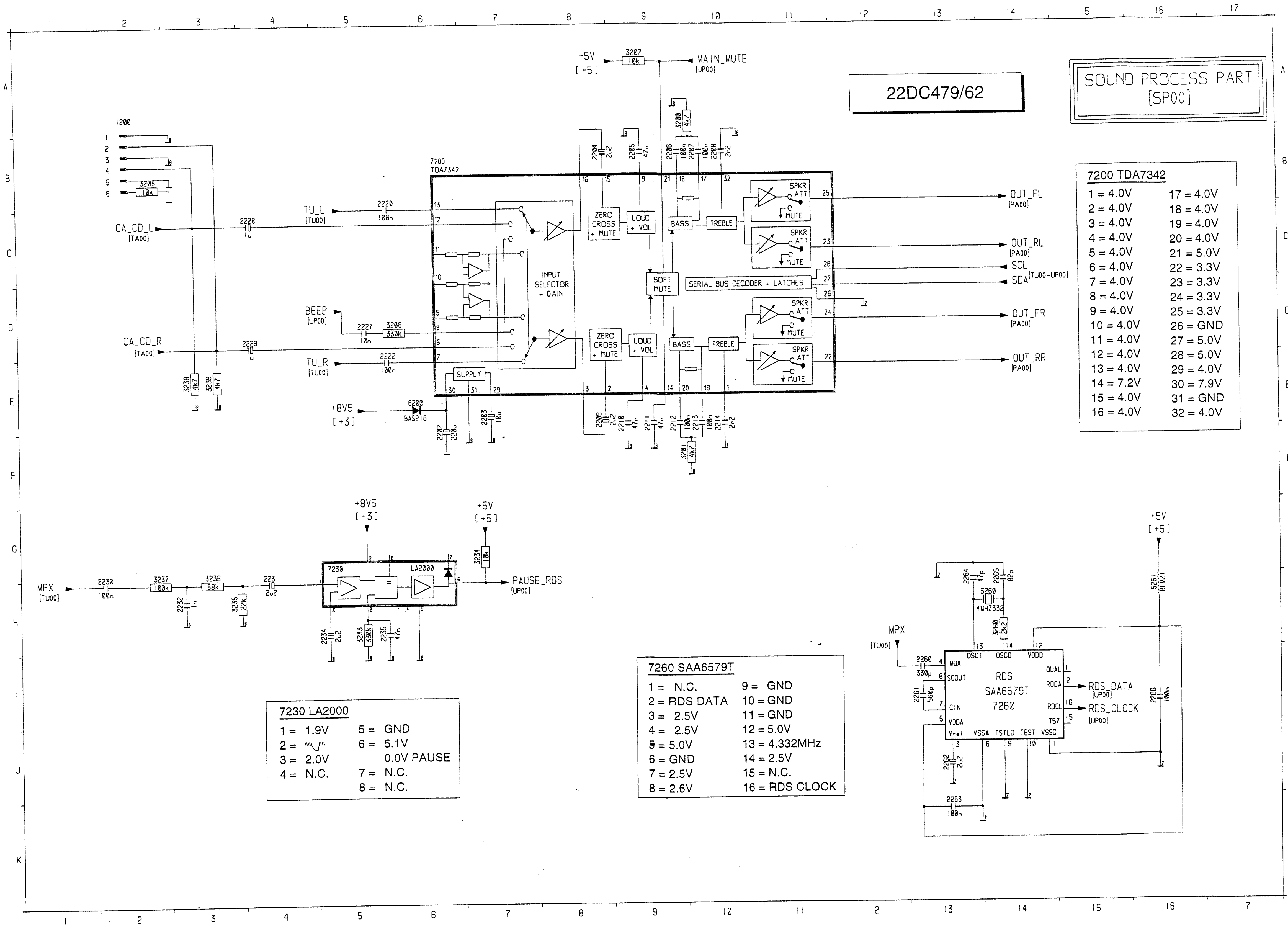
MAIN PWB LAYOUT
TOP VIEW



22DC479/62

MAIN PWB LAYOUT BOTTOM VIEW

2181	G	8
2182	G	8
2183	G	8
2230	G	8
2232	G	8
2235	G	7
2260	I	5
2263	I	5
2311	A	6
2314	A	4
2317	A	6
2319	B	6
2320	A	4
2321	B	8
2322	B	8
2323	C	8
2324	C	8
2325	A	8
2326	A	8
2327	B	8
2328	B	8
2403	D	4
2405	D	4
2409	A	3
2411	D	6
2413	C	6
2414	E	3
2422	C	2
2423	D	6
2424	D	3
2470	B	8
2471	B	8
2472	C	8
2473	C	8
2500	G	3
2501	E	2
2521	A	2
2523	A	2
3175	G	8
3178	E	8
3179	E	8
3181	G	8
3182	F	8
3184	F	8
3207	E	4
3208	I	2
3233	G	7
3234	G	7
3236	G	7
3237	G	8
3302	G	3
3312	B	5
3313	A	6
3316	B	5
3317	B	8
3318	C	8
3319	C	8
3320	C	8
3321	A	8
3322	A	8
3323	B	8
3324	B	8
3405	D	2
3409	D	3
3410	D	4
3411	D	4
3412	D	4
3416	C	2
3417	B	3
3421	D	2
3422	D	6
3423	D	6
3424	D	6
3425	C	6
3428	D	3
3429	D	5
3431	D	6
3432	D	5
3440	D	5
3441	C	7
3443	D	5
3444	D	3
3460	A	3
3463	E	7
3464	E	6
3468	G	6
3469	E	7
3472	D	8
3473	D	8
3474	C	8
3490	A	2
3492	C	8
3494	B	3
3495	A	3
3500	G	3
3501	F	2
3502	F	2
3503	F	2
3504	G	3
3506	G	7
3507	G	7
3512	G	6
3513	G	7
3514	G	6
3515	G	6
3516	G	7
3517	G	7
3523	G	3
3524	G	3
3527	G	3
3529	C	2
3530	C	2
3531	C	2
3532	C	2
3535	F	2
3536	C	2
3537	C	1
3538	C	2
3539	G	7
3680	G	5
3681	G	5
3682	G	5
3683	G	5
3729	H	4
3737	H	3
3740	H	3
3748	C	4
3753	C	4
3755	C	4
3757	C	4
3762	C	4
3763	D	4
3764	C	3
3765	C	4
3767	C	4
3800	D	3
3801	D	4
3805	D	3
3806	E	3
4999	F	9
5261	I	5
6200	F	4
6403	D	3
6404	A	7
6407	I	6
6408	D	2
6409	B	3
6412	D	5
6470	C	7
6475	A	2
6500	F	6
6501	H	6
6502	H	7
6506	C	2
6680	G	5
7400	E	2
7401	E	2
7403	C	2
7404	B	3
7407	D	6
7410	D	6
7413	E	3
7421	D	3
7471	A	3
7473	E	7
7474	G	6
7680	G	5



1200
3208 10k
CA_CD_L [TA00]
CA_CD_R [TA00]
2228
2229
3238 4k7
3239 4k7
TU_L [TU00]
TU_R [TU00]
2220 100n
2222 100n
BEEP [UP00]
2227 10n
3206 330k
7200 TDA7342
INPUT SELECTOR + GAIN
ZERO CROSS + MUTE
LOUD + VOL
SOFT MUTE
BASS
TREBLE
SPKR ATT
MUTE
SERIAL BUS DECODER + LATCHES
SUPPLY
+5V [+5]
3207 10k
MAIN_MUTE [UP00]
3200 4k7
2204 2u2
2205 47n
2206 100n
2207 100n
2208 2n2
2209 2u2
2210 47n
2211 47n
2212 100n
2213 100n
2214 2n2
3201 4k7
+8V5 [+3]
6200 BAS216
2202 220u
2203 10u
OUT_FL [PA00]
OUT_RL [PA00]
SCL
SDA [TU00-UP00]
OUT_FR [PA00]
OUT_RR [PA00]
MPX [TU00]
2230 100n
3237 100k
3236 68k
2232 1n
3235 22k
2231 2u2
7230 LA2000
2234 2u2
3233 330k
2235 47n
3234 10k
PAUSE_RDS [UP00]
2264 47p
2265 82p
5260 4MHZ332
3260 2k2
5261 BLM21
2260 330p
2261 560p
2262 2u2
2263 100n
2266 100n
MUX
SCOUT
CIN
VDDA
Vref
OSCI
OSCO
VDDD
QUAL
RDDA
RDCL
T57
VSSA
TSTLD
TEST
VSSD
RDS SAA6579T 7260
RDS_DATA [UP00]
RDS_CLOCK [UP00]

22DC479/62

SOUND PROCESS PART
[SP00]

7200 TDA7342

1 = 4.0V	17 = 4.0V
2 = 4.0V	18 = 4.0V
3 = 4.0V	19 = 4.0V
4 = 4.0V	20 = 4.0V
5 = 4.0V	21 = 5.0V
6 = 4.0V	22 = 3.3V
7 = 4.0V	23 = 3.3V
8 = 4.0V	24 = 3.3V
9 = 4.0V	25 = 3.3V
10 = 4.0V	26 = GND
11 = 4.0V	27 = 5.0V
12 = 4.0V	28 = 5.0V
13 = 4.0V	29 = 4.0V
14 = 7.2V	30 = 7.9V
15 = 4.0V	31 = GND
16 = 4.0V	32 = 4.0V

7230 LA2000

1 = 1.9V	5 = GND
2 = ∿	6 = 5.1V 0.0V PAUSE
3 = 2.0V	7 = N.C.
4 = N.C.	8 = N.C.

7260 SAA6579T

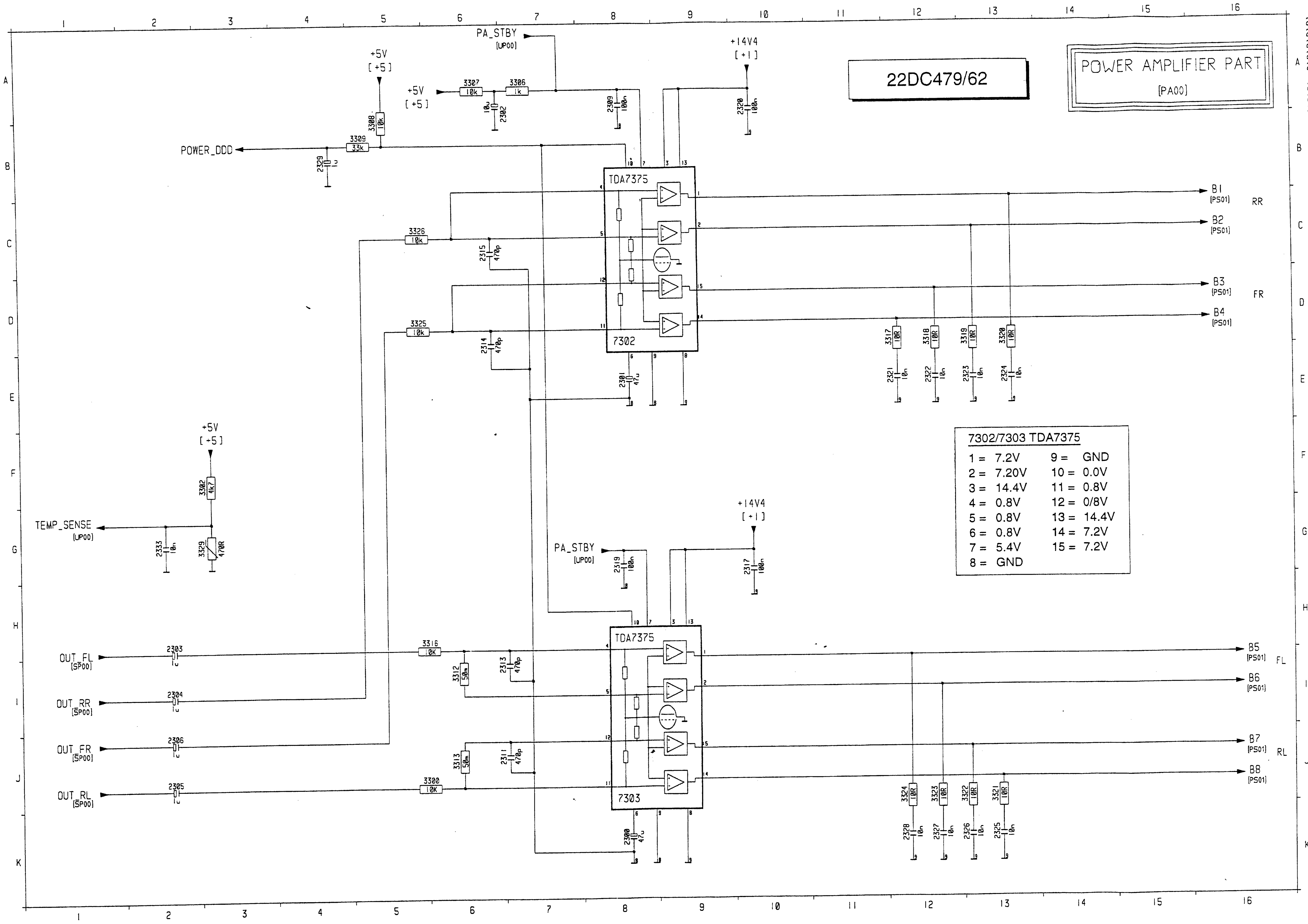
1 = N.C.	9 = GND
2 = RDS DATA	10 = GND
3 = 2.5V	11 = GND
4 = 2.5V	12 = 5.0V
5 = 5.0V	13 = 4.332MHz
6 = GND	14 = 2.5V
7 = 2.5V	15 = N.C.
8 = 2.6V	16 = RDS CLOCK

1200	A 2
2202	F 6
2203	E 7
2204	B 8
2205	B 9
2206	B 9
2207	B10
2208	B10
2209	E 8
2210	E 9
2211	E 9
2212	E 9
2213	E10
2214	E10
2220	B 5
2222	E 5
2227	D 5
2228	C 4
2229	D 4
2230	H 2
2231	H 4
2232	H 3
2234	H 5
2235	H 5
2260	I13
2261	I13
2262	J13
2263	K13
2264	H13
2265	H14
2266	I16
3200	A 9
3201	F 9
3206	D 6
3207	A 9
3208	B 2
3233	H 5
3234	G 7
3235	H 3
3236	G 3
3237	G 2
3238	E 3
3239	E 3
3260	H14
5260	H14
5261	H16
6200	E 6
7200	B 6
7230	G 5
7260	I14

22DC479/62

POWER AMPLIFIER PART

[PA00]

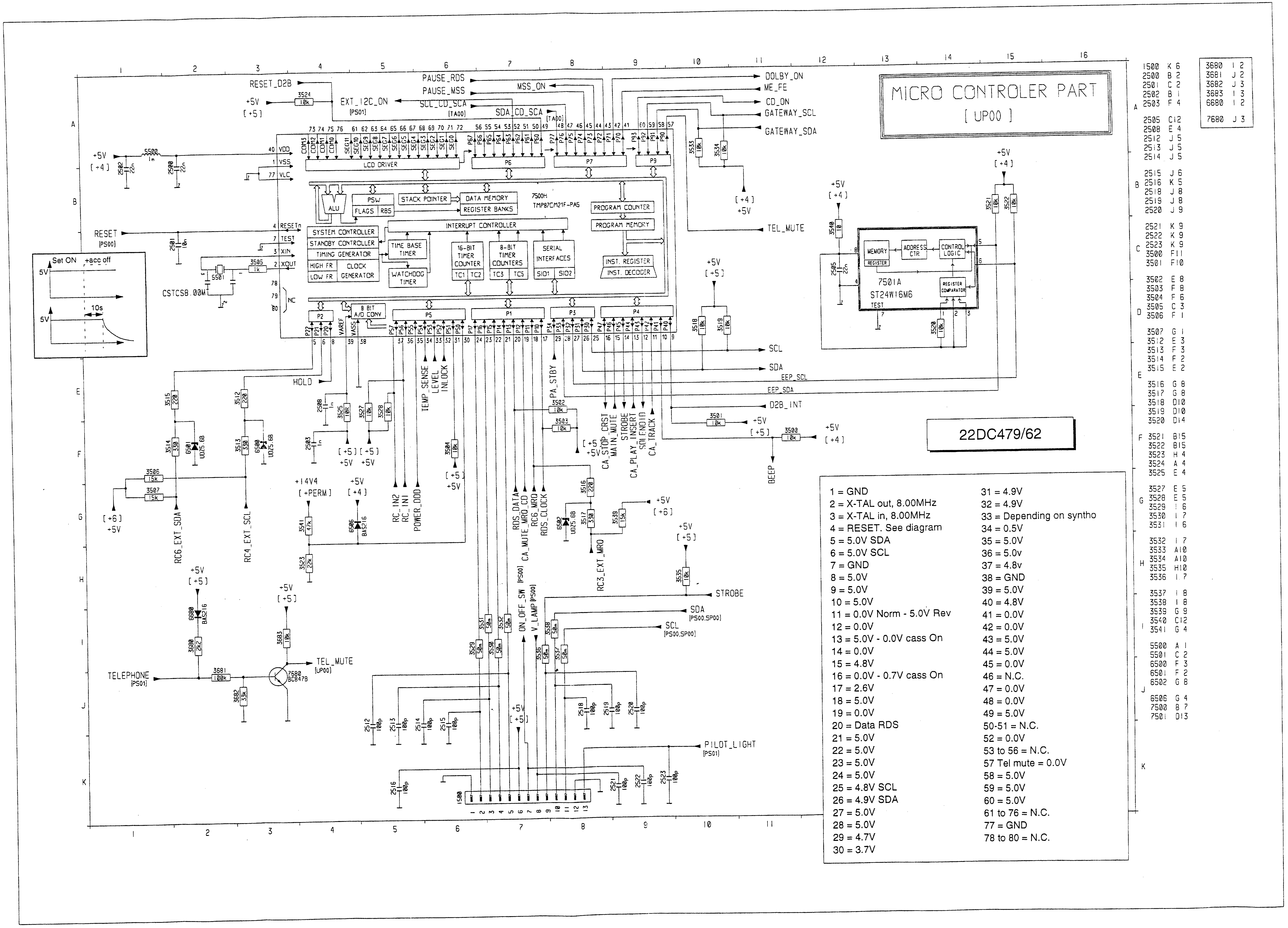

PA_STBY [UP00]
+5V [+5]
+14V4 [+1]
POWER_DDD
TEMP_SENSE [UP00]
OUT_FL [SP00]
OUT_RR [SP00]
OUT_FR [SP00]
OUT_RL [SP00]
TDA7375
7302
7303
B1 [PS01]
B2 [PS01]
B3 [PS01]
B4 [PS01]
B5 [PS01]
B6 [PS01]
B7 [PS01]
B8 [PS01]
RR
FR
FL
RL
3307 10k
3306 1k
3308 10k
3309 33k
3326 10k
3325 10k
3302 4K7
3329 470R
3316 10K
3300 10K
3312 50m
3313 50m
3317 10R
3318 10R
3319 10R
3320 10R
3321 10R
3322 10R
3323 10R
3324 10R
2302 10u
2309 100n
2320 100n
2329
2315 470p
2314 470p
2301 47u
2321 10n
2322 10n
2323 10n
2324 10n
2333 10n
2319 100n
2317 100n
2303
2304
2306
2305
2313 470p
2311 470p
2300 47u
2328 10n
2327 10n
2326 10n
2325 10n
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J K

7302/7303 TDA7375

1 = 7.2V
2 = 7.20V
3 = 14.4V
4 = 0.8V
5 = 0.8V
6 = 0.8V
7 = 5.4V
8 = GND
9 = GND
10 = 0.0V
11 = 0.8V
12 = 0/8V
13 = 14.4V
14 = 7.2V
15 = 7.2V

2300	K 8
2301	E 8
2302	A 6
2303	H 2
2304	I 2
2305	J 2
2306	J 2
2309	A 8
2311	J 6
2313	I 6
2314	D 6
2315	C 6
2317	G10
2319	G 8
2320	A10
2321	E12
2322	E12
2323	E13
2324	E13
2325	K13
2326	K13
2327	K12
2328	K12
2329	B 4
2333	G 2
3300	J 6
3302	F 3
3306	A 7
3307	A 6
3308	B 5
3309	B 5
3312	I 6
3313	J 6
3316	H 6
3317	D12
3318	D12
3319	D13
3320	D13
3321	J13
3322	J13
3323	J12
3324	J12
3325	D 5
3326	C 5
3329	G 3
7302	D 8
7303	J 8

PCS 98 353


RESET_D2B
+5V
[+5]
3524
10k
EXT_I2C_ON
[PS01]
PAUSE_RDS
PAUSE_MSS
SCL_CD_SCA
[TA00]
SDA_CD_SCA
[TA00]
MSS_ON
DOLBY_ON
ME_FE
CD_ON
GATEWAY_SCL
GATEWAY_SDA
LCD DRIVER
P6
P7
P9
VDD
VSS
VLC
5500
1m
2502
22n
2500
22n
+5V
[+4]
ALU
PSW
FLAGS
RBS
STACK POINTER
DATA MEMORY
REGISTER BANKS
7500
TMP87CM21F-PAS
PROGRAM COUNTER
PROGRAM MEMORY
INTERRUPT CONTROLLER
SYSTEM CONTROLLER
STANDBY CONTROLLER
TIMING GENERATOR
HIGH FR CLOCK
LOW FR GENERATOR
TIME BASE TIMER
WATCHDOG TIMER
16-BIT TIMER COUNTER
8-BIT TIMER COUNTERS
SERIAL INTERFACES
TC1 TC2 TC3 TC5 SIO1 SIO2
INST. REGISTER
INST. DECODER
RESET
[PS00]
RESETn
TEST
XIN
XOUT
2501
10n
3505
1k
5501
CSTCS8.00M
NC
8 BIT A/D CONV
P2
P5
P1
P3
P4
VAREF
VASS
Set ON
+acc off
5V
10s
3533
10k
3534
10k
[+4]
+5V
TEL_MUTE
3540
10
2505
22n
MEMORY
REGISTER
ADDRESS CTR
CONTROL LOGIC
REGISTER COMPARATOR
7501A
ST24W16M6
TEST
3521
10k
3522
10k
3520
10k
3518
10k
3519
10k
SCL
SDA
EEP_SCL
EEP_SDA
D2B_INT
3501
10k
3500
10k
BEEP
HOLD
3515
220
3512
220
3514
330
3513
330
6501
UDZ5.6B
6500
UDZ5.6B
3506
15k
3507
15k
[+6]
+5V
RC6_EXT_SDA
RC4_EXT_SCL
2508
1n
3525
100
3527
10k
3528
10k
2503
1n
[+5] [+5]
+5V +5V
TEMP_SENSE
LEVEL
INLOCK
3504
10k
[+5]
+5V
+14V4
[+PERM]
3541
47k
3523
22k
6506
BAS216
RC_IN2
RC_IN1
POWER_DDD
PA_STBY
3502
10k
3503
10k
RDS_DATA
CA_MUTE_MRO_CD
RC6_MRO
RDS_CLOCK
3516
220
6502
UDZ5.6B
3517
330
3539
15k
RC3_EXT_MRO
CA_STOP_CRST
MAIN_MUTE
STROBE
CA_PLAY_INSERT
SOLENOID
CA_TRACK
3535
10k
STROBE
ON_OFF_SW [PS00]
V_LAMP [PS00]
SDA [PS00,SP00]
SCL [PS00,SP00]
3531 3532 3529 3530 3536 3537 3538
50m
+5V
[+5]
6680
BAS216
3680
2k2
3683
10k
TELEPHONE [PS01]
3681
100k
3682
33k
7680
BC847B
TEL_MUTE [UP00]
2512 2513 2514 2515 2516 2518 2519 2520 2521 2522 2523
100p
PILOT_LIGHT [PS01]
1500
1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I J K

MICRO CONTROLER PART
[UP00]

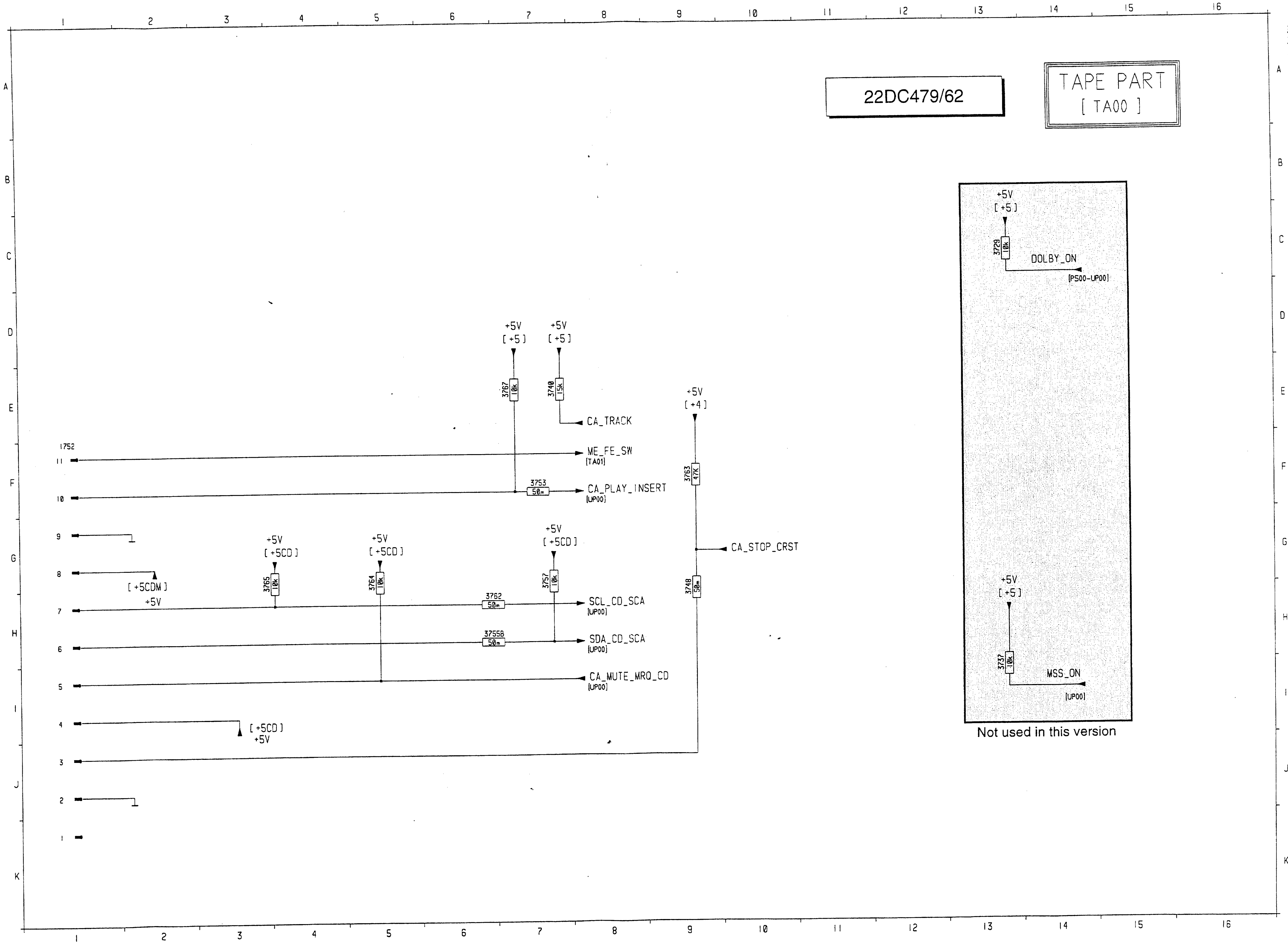
22DC479/62

1500	K 6	3680	I 2
2500	B 2	3681	J 2
2501	C 2	3682	J 3
2502	B 1	3683	I 3
2503	F 4	6680	I 2
2505	C12	7680	J 3
2508	E 4		
2512	J 5		
2513	J 5		
2514	J 5		
2515	J 6		
2516	K 5		
2518	J 8		
2519	J 8		
2520	J 9		
2521	K 9		
2522	K 9		
2523	K 9		
3500	F11		
3501	F10		
3502	E 8		
3503	F 8		
3504	F 6		
3505	C 3		
3506	F 1		
3507	G 1		
3512	E 3		
3513	F 3		
3514	F 2		
3515	E 2		
3516	G 8		
3517	G 8		
3518	D10		
3519	D10		
3520	D14		
3521	B15		
3522	B15		
3523	H 4		
3524	A 4		
3525	E 4		
3527	E 5		
3528	E 5		
3529	I 6		
3530	I 7		
3531	I 6		
3532	I 7		
3533	A10		
3534	A10		
3535	H10		
3536	I 7		
3537	I 8		
3538	I 8		
3539	G 9		
3540	C12		
3541	G 4		
5500	A 1		
5501	C 2		
6500	F 3		
6501	F 2		
6502	G 8		
6506	G 4		
7500	B 7		
7501	D13		

1 = GND
2 = X-TAL out, 8.00MHz
3 = X-TAL in, 8.00MHz
4 = RESET. See diagram
5 = 5.0V SDA
6 = 5.0V SCL
7 = GND
8 = 5.0V
9 = 5.0V
10 = 5.0V
11 = 0.0V Norm - 5.0V Rev
12 = 0.0V
13 = 5.0V - 0.0V cass On
14 = 0.0V
15 = 4.8V
16 = 0.0V - 0.7V cass On
17 = 2.6V
18 = 5.0V
19 = 0.0V
20 = Data RDS
21 = 5.0V
22 = 5.0V
23 = 5.0V
24 = 5.0V
25 = 4.8V SCL
26 = 4.9V SDA
27 = 5.0V
28 = 5.0V
29 = 4.7V
30 = 3.7V
31 = 4.9V
32 = 4.9V
33 = Depending on syntho
34 = 0.5V
35 = 5.0V
36 = 5.0v
37 = 4.8v
38 = GND
39 = 5.0V
40 = 4.8V
41 = 0.0V
42 = 0.0V
43 = 5.0V
44 = 5.0V
45 = 0.0V
46 = N.C.
47 = 0.0V
48 = 0.0V
49 = 5.0V
50-51 = N.C.
52 = 0.0V
53 to 56 = N.C.
57 Tel mute = 0.0V
58 = 5.0V
59 = 5.0V
60 = 5.0V
61 to 76 = N.C.
77 = GND
78 to 80 = N.C.

22DC479/62

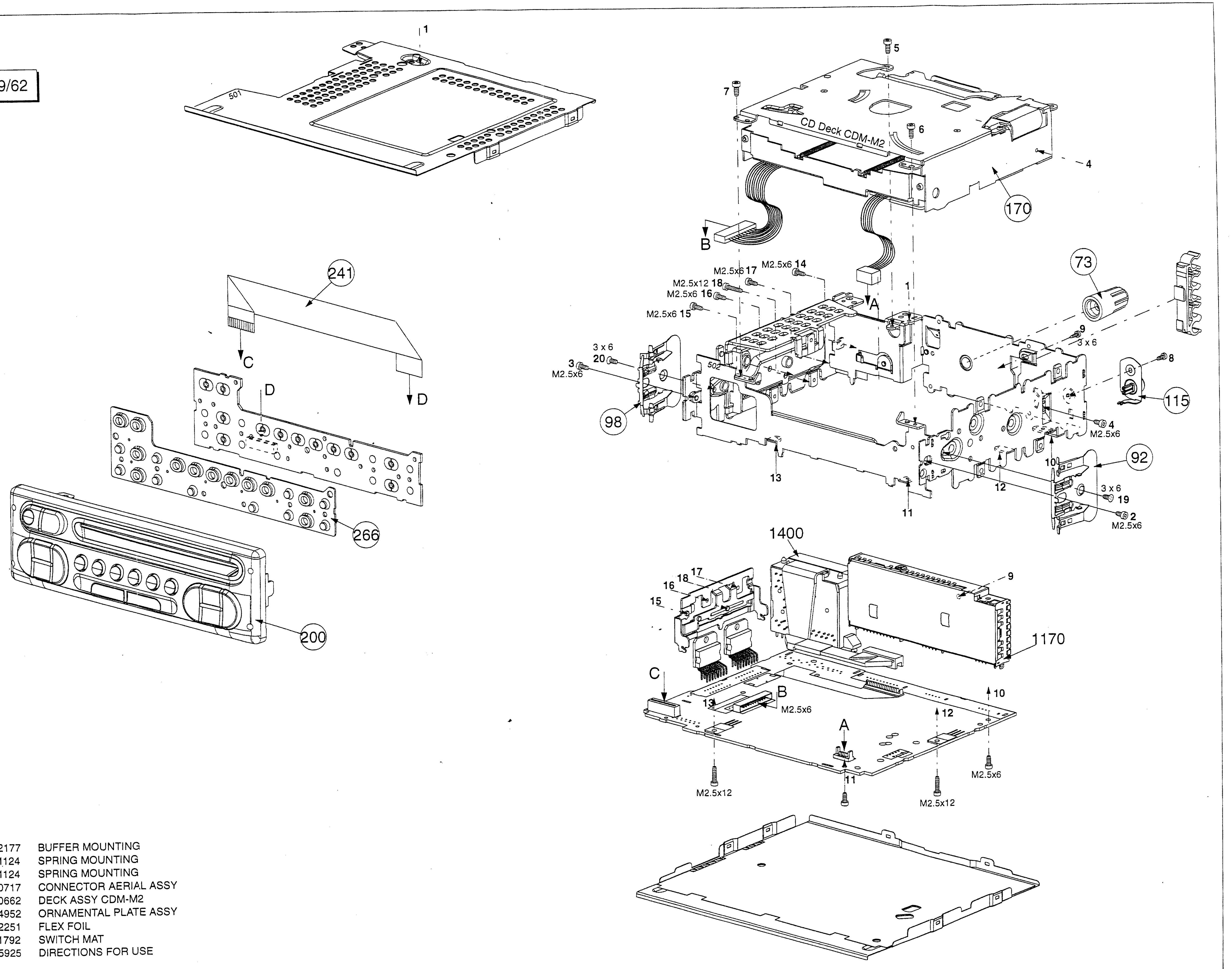
TAPE PART
[TA00]


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J K
+5V [+5]
3767 10k
3740 15k
CA_TRACK
+5V [+4]
3763 47K
1752
11 10 9 8 7 6 5 4 3 2 1
ME_FE_SW [TA01]
3753 50m
CA_PLAY_INSERT [UP00]
CA_STOP_CRST
3748 50m
[+5CDM] +5V
+5V [+5CD]
3765 10k
3764 10k
3757 10k
3762 50m
SCL_CD_SCA [UP00]
3755B 50m
SDA_CD_SCA [UP00]
CA_MUTE_MRQ_CD [UP00]
[+5CD] +5V
3729 10k
DOLBY_ON [PS00-UP00]
3737 10k
MSS_ON [UP00]

Not used in this version

1752	E 1
3729	D14
3737	I14
3740	E 7
3748	H 9
3753	F 7
3755	H 6
3757	G 7
3762	H 6
3763	F 9
3764	G 5
3765	G 3
3767	E 7

22DC479/62


1
501
241
C
D
D
266
200
5
7
CD Deck CDM-M2
6
4
170
B
M2.5x6 17
M2.5x6 14
M2.5x12 18
M2.5x6 16
M2.5x6 15
A
1
73
9
3 x 6
8
3 x 6
20
3
M2.5x6
502
98
115
4
M2.5x6
92
10
13
12
11
3 x 6
19
2
M2.5x6
1400
9
18
17
16
15
1170
C
B
13
M2.5x6
10
12
A
11
M2.5x12
M2.5x6
M2.5x12

73	4822 532 12177	BUFFER MOUNTING
92	4822 492 71124	SPRING MOUNTING
98	4822 492 71124	SPRING MOUNTING
115	4822 265 10717	CONNECTOR AERIAL ASSY
170	4822 691 10662	DECK ASSY CDM-M2
200	4822 459 04952	ORNAMENTAL PLATE ASSY
241	4822 320 12251	FLEX FOIL
266	4822 466 11792	SWITCH MAT
375	4822 736 15925	DIRECTIONS FOR USE

Miscellaneous

1170	4822 210 10741	TUNER IC96 8SV
1400	4822 265 11213	CONN. BLOCK A4-20W-ABD

⊣⊢

2181	5322 122 32531	100PF 5%NP0 50V
2182	5322 122 32654	22NF10%X7R 63V
2183	5322 122 32654	22NF10%X7R 63V
2185	5322 122 34123	1NF10%X7R 50V
2202	4822 124 23582	220UF 10V
2203	4822 124 41017	10UF 16V
2204	4822 124 23504	2.2UF20% 50V
2205	4822 126 13343	47NF10% X7R 25V
2206	4822 126 13196	100NF 10% 0805 X7R 25V
2207	4822 126 13196	100NF 10% 0805 X7R 25V
2208	4822 122 33127	2,2NF10%X7R 63V
2209	4822 124 23504	2.2UF20% 50V
2210	4822 126 13343	47NF10% X7R 25V
2211	4822 126 13343	47NF10% X7R 25V
2212	4822 126 13196	100NF 10% 0805 X7R 25V
2213	4822 126 13196	100NF 10% 0805 X7R 25V
2214	4822 122 33127	2,2NF10%X7R 63V
2220	4822 126 13196	100NF 10% 0805 X7R 25V
2222	4822 126 13196	100NF 10% 0805 X7R 25V
2227	5322 122 34098	10NF10%X7R 63V
2228	4822 124 23282	1UF20% 50V
2229	4822 124 23282	1UF20% 50V
2230	4822 126 13196	100NF 10% 0805 X7R 25V
2231	4822 124 23504	2.2UF20% 50V
2232	5322 122 34123	1NF10%X7R 50V
2234	4822 124 23504	2.2UF20% 50V
2235	4822 126 13343	47NF10% X7R 25V
2260	5322 122 31863	330PF 5%NP0 50V
2261	5322 116 80853	560PF 5%NP0 63V
2262	4822 124 23504	2.2UF20% 50V
2263	4822 126 13196	100NF 10% 0805 X7R 25V
2264	4822 126 13692	47PF 1% NP0 63V
2265	4822 126 13695	82PF 1% NP0 63V
2266	4822 126 13196	100NF 10% 0805 X7R 25V
2300	4822 124 22646	47UF20% 16V
2301	4822 124 22646	47UF20% 16V
2302	4822 124 41017	10UF 16V
2303	4822 124 23282	1UF20% 50V
2304	4822 124 23282	1UF20% 50V
2305	4822 124 23282	1UF20% 50V
2306	4822 124 23282	1UF20% 50V
2309	4822 126 13196	100NF 10% 0805 X7R 25V
2311	5322 122 32268	470PF 10% 50V
2313	5322 122 32268	470PF 10% 50V
2314	5322 122 32268	470PF 10% 50V
2315	5322 122 32268	470PF 10% 50V
2317	4822 126 13196	100NF 10% 0805 X7R 25V
2319	4822 126 13196	100NF 10% 0805 X7R 25V
2320	4822 126 13196	100NF 10% 0805 X7R 25V
2321	5322 122 34098	10NF10%X7R 63V
2322	5322 122 34098	10NF10%X7R 63V
2323	5322 122 34098	10NF10%X7R 63V
2324	5322 122 34098	10NF10%X7R 63V
2325	5322 122 34098	10NF10%X7R 63V
2326	5322 122 34098	10NF10%X7R 63V

⊣⊢

2327	5322 122 34098	10NF10%X7R 63V
2328	5322 122 34098	10NF10%X7R 63V
2329	4822 124 23282	1UF20% 50V
2333	5322 122 34098	10NF10%X7R 63V
2402	4822 124 11952	100UF 20% 16V
2403	4822 126 13196	100NF 10% 0805 X7R 25V
2404	4822 124 22646	47UF20% 16V
2405	4822 126 13196	100NF 10% 0805 X7R 25V
2406	4822 124 80769	2200UF20% 16V
2407	4822 124 80769	2200UF20% 16V
2408	4822 124 11952	100UF 20% 16V
2409	4822 126 13849	220NF 10% 16V
2410	4822 124 80061	1000UF20% 25V
2411	4822 126 13196	100NF 10% 0805 X7R 25V
2412	4822 126 13196	100NF 10% 0805 X7R 25V
2413	4822 126 13196	100NF 10% 0805 X7R 25V
2414	4822 126 12105	33NF 5%X7R 63V
2417	4822 124 23279	22UF20% 16V
2418	4822 124 23279	22UF20% 16V
2419	4822 124 41017	10UF 16V
2420	4822 124 23279	22UF20% 16V
2421	4822 124 11952	100UF 20% 16V
2422	5322 122 32654	22NF10%X7R 63V
2423	5322 122 34098	10NF10%X7R 63V
2424	4822 126 13196	100NF 10% 0805 X7R 25V
2425	5322 122 34098	10NF10%X7R 63V
2426	4822 124 23279	22UF20% 16V
2470	5322 122 32531	100PF 5%NP0 50V
2471	5322 122 32531	100PF 5%NP0 50V
2472	5322 122 32531	100PF 5%NP0 50V
2473	5322 122 34123	1NF10%X7R 50V
2478	4822 124 22646	47UF20% 16V
2479	5322 122 34098	10NF10%X7R 63V
2480	5322 122 32654	22NF10%X7R 63V
2500	5322 122 32654	22NF10%X7R 63V
2501	5322 122 34098	10NF10%X7R 63V
2502	5322 122 32654	22NF10%X7R 63V
2503	5322 122 34123	1NF10%X7R 50V
2505	5322 122 32654	22NF10%X7R 63V
2508	5322 122 34123	1NF10%X7R 50V
2512	5322 122 32531	100PF 5%NP0 50V
2513	5322 122 32531	100PF 5%NP0 50V
2514	5322 122 32531	100PF 5%NP0 50V
2515	5322 122 32531	100PF 5%NP0 50V
2516	5322 122 32531	100PF 5%NP0 50V
2518	5322 122 32531	100PF 5%NP0 50V
2519	5322 122 32531	100PF 5%NP0 50V
2520	5322 122 32531	100PF 5%NP0 50V
2521	5322 122 32531	100PF 5%NP0 50V
2522	5322 122 32531	100PF 5%NP0 50V
2523	5322 122 32531	100PF 5%NP0 50V
2901	5322 122 32654	22NF10%X7R 63V
2902	5322 122 32654	22NF10%X7R 63V

─▭─

3175	4822 051 20102	1K00 5% 0,1W
3178	4822 051 20008	0R00 JUMP. (0805)
3179	4822 051 20008	0R00 JUMP. (0805)
3181	4822 117 10833	10K 1% 0,1W
3182	4822 051 20562	5K60 5% 0,1W

3183	4822 051 20273	27K00 5% 0,1W	3428	4822 051 20229	22R00 5% 0,1W
3184	4822 051 20008	0R00 JUMP. (0805)	3429	4822 117 10833	10K 1% 0,1W
3200	4822 051 20472	4K70 5% 0,1W	3431	4822 051 20104	100K00 5% 0,1W
3201	4822 051 20472	4K70 5% 0,1W	3432	4822 117 10833	10K 1% 0,1W
3206	4822 051 20334	330K00 5% 0,1W	3435	4822 051 20472	4K70 5% 0,1W
3207	4822 117 10833	10K 1% 0,1W	3436	4822 051 20472	4K70 5% 0,1W
3208	4822 117 10833	10K 1% 0,1W	3439	4822 117 11449	2K2 1% 0,1W
3233	4822 051 20334	330K00 5% 0,1W	3440	4822 117 10834	47K 1% 0,1W
3234	4822 117 10833	10K 1% 0,1W	3441	4822 117 10965	18K 1% 0,1W
3235	4822 051 20223	22K00 5% 0,1W	3443	4822 117 11449	2K2 1% 0,1W
3236	4822 051 20683	68K00 5% 0,1W	3444	4822 051 20008	0R00 JUMP. (0805)
3237	4822 051 20104	100K00 5% 0,1W	3454	4822 117 12955	2K7 1% 0,1W 0805
3238	4822 051 20472	4K70 5% 0,1W	3455	4822 117 12955	2K7 1% 0,1W 0805
3239	4822 051 20472	4K70 5% 0,1W	3456	4822 117 12955	2K7 1% 0,1W 0805
3260	4822 117 11449	2K2 1% 0,1W	3457	4822 117 12955	2K7 1% 0,1W 0805
3300	4822 117 10833	10K 1% 0,1W	3458	4822 117 12955	2K7 1% 0,1W 0805
3302	4822 051 20472	4K70 5% 0,1W	3460	4822 051 20008	0R00 JUMP. (0805)
3306	4822 051 20102	1K00 5% 0,1W	3463	4822 051 20223	22K00 5% 0,1W
3307	4822 117 10833	10K 1% 0,1W	3464	4822 051 20472	4K70 5% 0,1W
3308	4822 117 10833	10K 1% 0,1W	3465	4822 117 10834	47K 1% 0,1W
3309	4822 051 20333	33K00 5% 0,1W	3466	4822 117 10833	10K 1% 0,1W
3312	4822 051 20008	0R00 JUMP. (0805)	3467	4822 051 20472	4K70 5% 0,1W
3313	4822 051 20008	0R00 JUMP. (0805)	3468	4822 051 20223	22K00 5% 0,1W
3316	4822 117 10833	10K 1% 0,1W	3469	4822 051 20101	100R00 5% 0,1W
3317	4822 051 20109	10R00 5% 0,1W	3471	4822 116 40267	3R3 25% 20V
3318	4822 051 20109	10R00 5% 0,1W	3472	4822 051 20101	100R00 5% 0,1W
3319	4822 051 20109	10R00 5% 0,1W	3473	4822 051 20101	100R00 5% 0,1W
3320	4822 051 20109	10R00 5% 0,1W	3474	4822 051 20008	0R00 JUMP. (0805)
3321	4822 051 20109	10R00 5% 0,1W	3488	4822 051 20472	4K70 5% 0,1W
3322	4822 051 20109	10R00 5% 0,1W	3490	4822 051 20008	0R00 JUMP. (0805)
3323	4822 051 20109	10R00 5% 0,1W	3491	4822 051 20333	33K00 5% 0,1W
3324	4822 051 20109	10R00 5% 0,1W	3492	4822 051 20104	100K00 5% 0,1W
3325	4822 117 10833	10K 1% 0,1W	3494	4822 117 11449	2K2 1% 0,1W
3326	4822 117 10833	10K 1% 0,1W	3495	4822 051 20104	100K00 5% 0,1W
3329	4822 116 10062	470R 50% 16V PTC 0805	3496	4822 051 20223	22K00 5% 0,1W
3399	4822 051 20008	0R00 JUMP. (0805)	3500	4822 117 10833	10K 1% 0,1W
3400	4822 051 20008	0R00 JUMP. (0805)	3501	4822 117 10833	10K 1% 0,1W
3402	4822 117 12955	2K7 1% 0,1W 0805	3502	4822 117 10833	10K 1% 0,1W
3403	4822 117 12955	2K7 1% 0,1W 0805	3503	4822 117 10833	10K 1% 0,1W
3404	4822 117 12955	2K7 1% 0,1W 0805	3504	4822 117 10833	10K 1% 0,1W
3405	4822 051 20472	4K70 5% 0,1W	3505	4822 051 20102	1K00 5% 0,1W
3406	4822 117 10833	10K 1% 0,1W	3506	4822 051 20153	15K00 5% 0,1W
3407	4822 051 20104	100K00 5% 0,1W	3507	4822 051 20153	15K00 5% 0,1W
3408	4822 051 20102	1K00 5% 0,1W	3512	4822 117 11503	220R 1% 0.1W
3409	4822 051 20104	100K00 5% 0,1W	3513	4822 051 20331	330R00 5% 0,1W
3410	4822 051 20333	33K00 5% 0,1W	3514	4822 051 20331	330R00 5% 0,1W
3411	4822 051 20393	39K00 5% 0,1W	3515	4822 117 11503	220R 1% 0.1W
3412	4822 051 20229	22R00 5% 0,1W	3516	4822 117 11503	220R 1% 0.1W
3413	4822 117 10834	47K 1% 0,1W	3517	4822 051 20331	330R00 5% 0,1W
3414	4822 117 10834	47K 1% 0,1W	3518	4822 117 10833	10K 1% 0,1W
3416	4822 117 10834	47K 1% 0,1W	3519	4822 117 10833	10K 1% 0,1W
3417	4822 051 20472	4K70 5% 0,1W	3520	4822 117 10833	10K 1% 0,1W
3420	4822 051 20681	680R00 5% 0,1W	3521	4822 117 10833	10K 1% 0,1W
3421	4822 117 11449	2K2 1% 0,1W	3522	4822 117 10833	10K 1% 0,1W
3422	4822 051 20224	220K00 5% 0,1W	3523	4822 051 20223	22K00 5% 0,1W
3423	4822 051 20474	470K00 5% 0,1W	3524	4822 117 10833	10K 1% 0,1W
3424	4822 051 20184	180K00 5% 0,1W	3525	4822 051 20109	10R00 5% 0,1W
3425	4822 051 20224	220K00 5% 0,1W	3527	4822 117 10833	10K 1% 0,1W
3426	4822 051 20392	3K90 5% 0,1W	3528	4822 117 10833	10K 1% 0,1W
3427	4822 051 20223	22K00 5% 0,1W	3529	4822 051 20008	0R00 JUMP. (0805)

3530	4822 051 20008	0R00 JUMP. (0805)
3531	4822 051 20008	0R00 JUMP. (0805)
3532	4822 051 20008	0R00 JUMP. (0805)
3533	4822 117 10833	10K 1% 0,1W
3534	4822 117 10833	10K 1% 0,1W
3535	4822 117 10833	10K 1% 0,1W
3536	4822 051 20008	0R00 JUMP. (0805)
3537	4822 051 20008	0R00 JUMP. (0805)
3538	4822 051 20008	0R00 JUMP. (0805)
3539	4822 051 20153	15K00 5% 0,1W
3540	4822 051 20109	10R00 5% 0,1W
3541	4822 117 10834	47K 1% 0,1W
3680	4822 117 11449	2K2 1% 0,1W
3681	4822 051 20104	100K00 5% 0,1W
3682	4822 051 20333	33K00 5% 0,1W
3683	4822 117 10833	10K 1% 0,1W
3729	4822 117 10833	10K 1% 0,1W
3737	4822 117 10833	10K 1% 0,1W
3740	4822 051 20153	15K00 5% 0,1W
3748	4822 051 20008	0R00 JUMP. (0805)
3753	4822 051 20008	0R00 JUMP. (0805)
3755	4822 051 20008	0R00 JUMP. (0805)
3757	4822 117 10833	10K 1% 0,1W
3762	4822 051 20008	0R00 JUMP. (0805)
3763	4822 117 10834	47K 1% 0,1W
3764	4822 117 10833	10K 1% 0,1W
3765	4822 117 10833	10K 1% 0,1W
3767	4822 117 10833	10K 1% 0,1W
3800	4822 051 20229	22R00 5% 0,1W
3801	4822 051 20229	22R00 5% 0,1W
3805	4822 051 20223	22K00 5% 0,1W
3806	4822 051 20223	22K00 5% 0,1W
3904	4822 051 20223	22K00 5% 0,1W
3905	4822 051 20223	22K00 5% 0,1W
3906	4822 051 20223	22K00 5% 0,1W
3907	4822 051 20223	22K00 5% 0,1W
3908	4822 117 11503	220R 1% 0.1W
3909	4822 117 11503	220R 1% 0.1W
3910	4822 117 11503	220R 1% 0.1W
3913	4822 117 12955	2K7 1% 0,1W 0805
3914	4822 117 12955	2K7 1% 0,1W 0805
3915	4822 051 20681	680R00 5% 0,1W
3916	4822 051 20471	470R00 5% 0,1W
3917	4822 051 20681	680R00 5% 0,1W
3918	4822 051 20471	470R00 5% 0,1W
3919	4822 051 20681	680R00 5% 0,1W
3920	4822 051 20471	470R00 5% 0,1W
3921	4822 051 20681	680R00 5% 0,1W
3922	4822 051 20471	470R00 5% 0,1W
3923	4822 051 20101	100R00 5% 0,1W
3924	4822 051 20681	680R00 5% 0,1W
3925	4822 051 20471	470R00 5% 0,1W
3926	4822 051 20681	680R00 5% 0,1W
3927	4822 051 20471	470R00 5% 0,1W
3928	4822 117 12955	2K7 1% 0,1W 0805
3929	4822 117 12955	2K7 1% 0,1W 0805
3930	4822 117 12955	2K7 1% 0,1W 0805

5172	4822 157 10975	120UH 10%
5173	4822 157 71184	10UH 10%
5260	4822 242 80259	LN-G38-311 (4,332MHZ)
5261	4822 157 71206	BLM21A601SPT
5420	4822 157 70935	COIL ASSY 97UH 10A
5500	4822 157 11207	EL0405RA-102K-3
5501	4822 242 10753	CSTCS8,00MT-TC

6200	4822 130 83757	BAS216
6400	4822 130 83757	BAS216
6401	4822 130 83757	BAS216
6403	4822 130 83757	BAS216
6404	4822 130 10488	S3G
6407	4822 130 10877	UDZ9.1B
6408	4822 130 10185	UDZ5.6B
6409	4822 130 10655	1SR154-400
6412	4822 130 83757	BAS216
6470	4822 130 83757	BAS216
6475	4822 130 11149	UDZ13B
6477	4822 130 83757	BAS216
6478	4822 130 10655	1SR154-400
6500	4822 130 10185	UDZ5.6B
6501	4822 130 10185	UDZ5.6B
6502	4822 130 10185	UDZ5.6B
6506	4822 130 83757	BAS216
6680	4822 130 83757	BAS216
6900	4822 130 10185	UDZ5.6B
6901	4822 130 10185	UDZ5.6B
6902	4822 130 10185	UDZ5.6B
6903	4822 130 83757	BAS216
6904	4822 130 83757	BAS216
6905	4822 130 83757	BAS216
6906	4822 130 83757	BAS216
6907	4822 130 83757	BAS216
6910	4822 130 11153	LOT770-JK
6911	4822 130 11153	LOT770-JK
6912	4822 130 11153	LOT770-JK
6913	4822 130 11153	LOT770-JK
6914	4822 130 11153	LOT770-JK
6915	4822 130 11153	LOT770-JK
6916	4822 130 11153	LOT770-JK
6917	4822 130 11153	LOT770-JK
6918	4822 130 11153	LOT770-JK
6919	4822 130 11153	LOT770-JK
6920	4822 130 11153	LOT770-JK
6921	4822 130 11153	LOT770-JK
6922	4822 130 11153	LOT770-JK
6923	4822 130 11153	LOT770-JK
6924	4822 130 11153	LOT770-JK
6925	4822 130 11153	LOT770-JK
6926	4822 130 11153	LOT770-JK
6927	4822 130 11153	LOT770-JK
6928	4822 130 11153	LOT770-JK

7200	4822 209 12723	TDA7342
7230	4822 209 83159	LA2000 (SANYO)
7260	4822 209 31981	SAA6579T
7302	4822 209 33629	TDA7375
7303	4822 209 33629	TDA7375

7400	4822 130 60511	BC847B
7401	5322 130 60508	BC857B
7402	4822 209 15418	L4949ED
7403	4822 130 60511	BC847B
7404	5322 130 60508	BC857B
7405	4822 130 40995	BD438
7407	4822 130 60511	BC847B
7409	5322 209 14477	HEF4013BT
7410	5322 130 60508	BC857B
7411	4822 130 40995	BD438
7412	4822 130 60511	BC847B
7413	4822 130 60511	BC847B
7417	4822 130 10839	2SD2061
7418	4822 130 10839	2SD2061
7420	5322 130 60508	BC857B
7421	4822 130 60511	BC847B
7470	4822 130 10659	2SD2039
7471	4822 130 60511	BC847B
7472	5322 130 60508	BC857B
7473	5322 130 60508	BC857B
7474	5322 130 60508	BC857B
7475	4822 130 60511	BC847B
7500	4822 209 16331	TMP87CM21F/2259
7501	4822 900 11212	ST24W16M6-22DC459/62F
7680	4822 130 60511	BC847B
7900	5322 209 11306	HEF4094BT

PCS 98 360

Philips Car Systems

automotive
mannesmann
VDO

ERSATZTEILE
für Philips Car Systems
erhalten Sie bei:
KiVi Service GmbH
Windmühlenstr. 41 · 31178 Giesen/Emmerke
Tel.: 0 51 21 / 6 00 20 · Fax 0 51 21 / 60 02 54

CD Module CDM-M2/1.1/1.1-1/1.1R/1.2/2.3

Service Manual

12 V

1. GENERAL

The CDM-M2 is a full-logic µP- and servo-controlled CD module. The module is controlled by the headset via the standardized I^2C bus. The mechanical part is the same for all versions; the table gives an overview of the different connector types, supply voltages and applications.
The CDM-M2 has a so-called 'Pirouette' loading mechanism. This means that the CD is loaded and ejected with help of a roller which touches only the edge of the CD instead of the disc surface.
This guarantees an absolute scratch-free loading and ejecting of the CD.
Other built-in protections are against: 2nd disc insertion, 8cm disc insertion and mechanism damage when inserting a CD during power-off.

2. TECHNICAL DATA

Operating voltages : *Refer to table (section 3)*
Crosstalk suppression : ≥ 75 dBA - A-weighted
THD : ≥ 60 dBA - A-weighted
S/N ratio : ≥ 85 dBA - A-weighted
Dynamic range : ≥ 75 dBA - A-weighted
De-emphasis : ≥ 8 dB
Bus interface : I^2C
Weight : approx. 600 g

Published by VDO Car Communication Printed in The Netherlands ©Copyright reserved Subject to modification 4822 725 25483

PCS 92 011

3. OVERVIEW OF CDM-M2 VERSIONS

Version	Control Connector	Data Connector	Supply Voltage V1	Supply Voltage V2	Remarks
1.1	11-pole MOLEX SPOX	6-pole MOLEX PICOFLEX	4.75 - 5.25VDC 5.0VDC nom.	4.75 - 5.25VDC 5.0VDC nom.	Analogue audio output
1.1-1	10-pole MOLEX PICOFLEX	6-pole MOLEX PICOFLEX	4.75 - 5.25VDC 5.0VDC nom.	4.75 - 5.25VDC 5.0VDC nom.	Analogue audio output
1.1R	11-pole MOLEX SPOX	6-pole MOLEX PICOFLEX	4.75 - 5.25VDC 5.0VDC nom.	4.75 - 5.25VDC 5.0VDC nom.	As version 1.1 - but with new push-back
1.2	11-pole MOLEX SPOX	6-pole MOLEX PICOFLEX	4.75 - 5.25VDC 5.0VDC nom.	4.75 - 5.25VDC 5.0VDC nom.	Digital audio output
2.3	14-pole APM MICRO-MATCH	Combined with Control connector	10.0 - 16.0VDC 13.2VDC nom.	4.75 - 5.25VDC 5.0VDC nom.	Navigation system application / CD-ROM

For connector pin layouts, see further on in this manual.

4. MAINTENANCE

Remark: All position numbers of the main assy are given as normal fonts; position numbers of the pick-up assy are underlined.

4.1 Cleaning and lubrication

The CD module mechanism requires periodic cleaning and lubrication.

4.2 Cleaning with alcohol

- Turntable wheel pos. 14.
- Disc clamp assy pos. 2.
- Lens of pickup (laser) unit pos. 4.

4.3 Lubrication Overviews

See page 4.

5. CHECKS

5.1 Equipment Required

- Test CD's:

• SBC442	4822 397 30155
• SBC444/444A	4822 397 30245
• Audio Signals disc1 SBC429	4822 397 30184
• A-BEX TCD721 (white scratch)	
• Philips 8A (double black dot)	
• Max. thickness	4822 397 30275
• Min. thickness	4822 397 30276
• Skew disc	4822 397 30277
• Eccentr. 200µm	4822 397 30278
• Max. radius	4822 397 60141

The CD module should be tested while connected to a suitable radio set.

5.2 Access times

- Use the test CD SBC442.
- Maximum times should be:
  - 'Load to Play': 6 sec
  - Start up: 3 sec
  - Switch track1 → track 2: 2 sec
  - Switch track1 → track 20: 4 sec
  - Play → standby: 3 sec
  - Standby → eject: 3 sec
- If one or more times exceed the max. value, check (gear) wheels pos. 5-9 + 51, feed gear assy pos. 10/11 and drive gear pos. 13 and replace if necessary.
  Check also the servo- and sledge (feed) motors (resp. pos. 3 and 5).

5.3 Black dot

- Use test CD SBC444A with simulated black dot of typ. 1000µm.
- No 'hitching' may occur now during play.

5.4 Double black dot

- Use test CD Philips 8A with simulated black dots of 600+300µm.
- No 'hitching' may occur now during play.

5.5 Information layer interruption

- Use test CD SBC444A with simulated interruption of typ. 1000µm.
- No 'hitching' may occur now during play.

5.6 Simulated fingerprint

- Use test CD SBC444A with simulated fingerprint (tracks 18 and 19).
- No 'hitching' may occur now during play.

5.7 'White' scratch

- Use test CD A-BEX TCD721 with a white scratch of typ. 1000µm.
- No 'hitching' may occur now during play.

5.8 Eccentricity

- Use test CD with 200ìm eccentricity.
- No audible distortion, wow or flutter may be heard now.

5.9 Thickness

- Use the 'max.- and min. thickness' test CD's.
- The module should load these discs properly and no audible distortion, wow or flutter may be heard now.

5.10 Track attainability

- Use 'Audio signals' test CD.
- Track no.99 should be reached without problems.

When one or more specifications mentioned in '5.3' - '5.10' are not met, check the sledge (feed) assy pos. 5/6/10-13, spindle motor pos. 7 and pick-up unit pos. 4.
Replace if necessary.

For more information refer to the manual: 'General Check and Alignment Procedures' 4822 725 25456.

6. DISASSEMBLY PROCEDURE

Important: Before disassembling the CD module, lay the module with the pcb side up, unless otherwise noted.
Close the solder bridge on the flex foil of the pick-up (laser) unit assy pos. 4 of the drive assy pos. 43.
First the rear bracket pos. 11 should be removed!
For re-assembling, follow the procedures in reverse order. Take care that the wires, cams etc. are in the right position again after re-assembling.
For the exact position of the parts, refer to the exploded view.

6.1 CD pcb pos. 37

- Remove cable assy's pos. 59 and 60.
- Remove flexfoil of drive assy pos. 43 from the connector.
- Unplug the cables of the spindle- and sledge motor of pos. 43 and the servo motor pos. 3.
- Remove the two screws pos. 38.
- Pull the left part of the pcb slightly backward, lift it and take the pcb out.

6.2 Front bracket assy pos. 1

- First remove the CD pcb (see '**6.1**').
- Remove the two fixation screws pos. 23.
- Loosen the three springs pos. 17 and 48 from the pivots of the bracket.
- Pull off the damper from the pin of pos. 43.
- Take front bracket away.
- When re-assembling, put some spirit on the damper fixation pivots to make it easier to fix the damper.
- *Use new springs for pos. 17 and 48!*

6.3 Rear bracket pos. 11

- Remove the two fixation screws pos. 23.
- Loosen the two adhesive tapes and remove the servo motor cable wires.
- Pull off the two dampers from the pins of pos. 43.
- Take rear bracket away.
- When re-assembling, put some spirit on the damper fixation pivots to make it easier to fix the dampers.

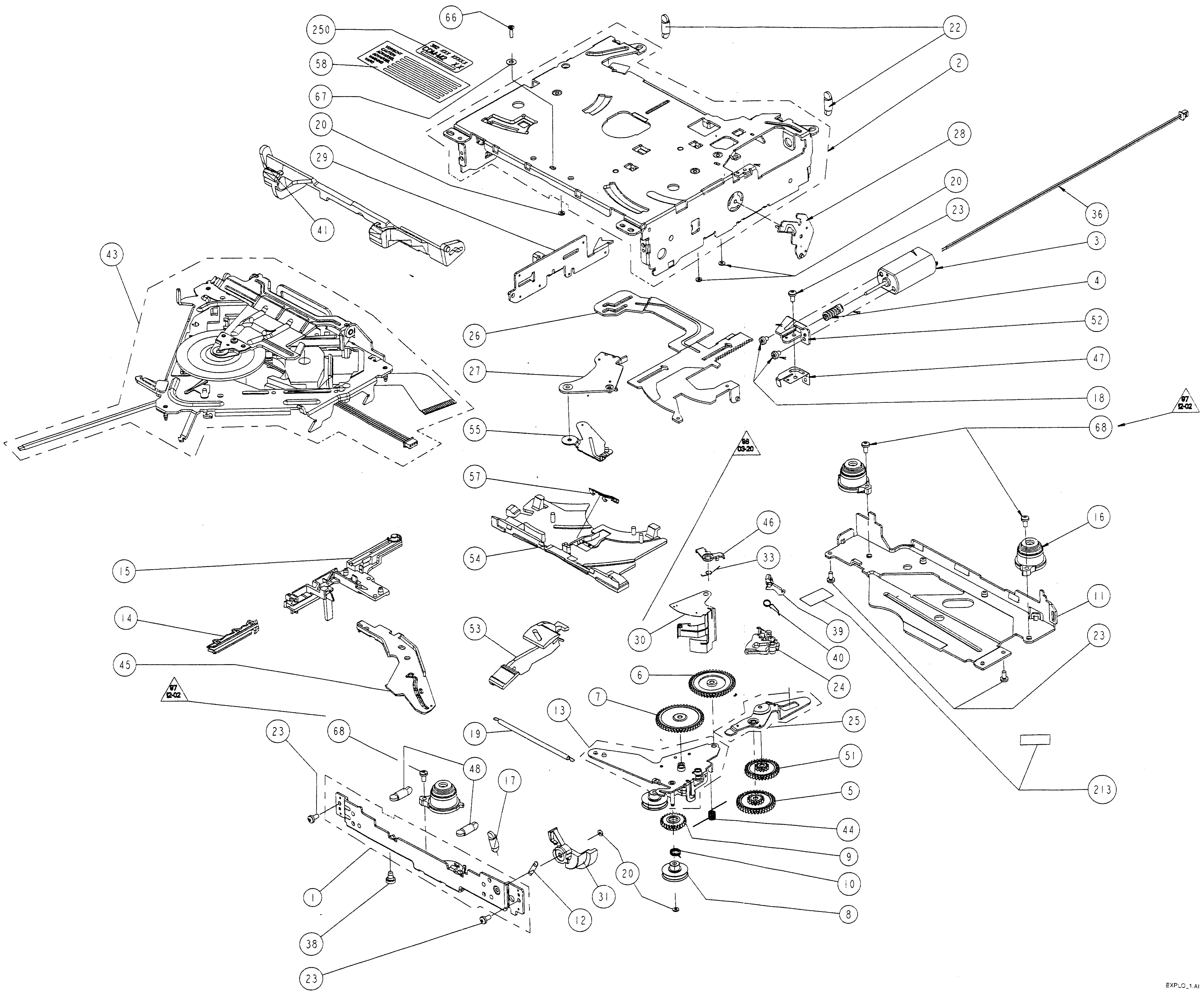
6.4 Drive assy pos.43

- First remove the pcb and brackets as described in '**6.1**', '**6.2**' and '**6.3**'.
- Remove the protection rod pos. 41.
- Unhook the two springs pos. 22.
- Supply the servo motor with a DC voltage of approx. 3...5V ('+' to motor terminal marked by red dot), to have the motor run so that command slider pos. 26 moves backward; *and* push roller pos. 8 to the left *and* push guiding/lever pos. 14/15 to the right *simultaneously*.
- Alternative method:
  Remove the servo motor by removing fixation screw pos. 23 and pulling the worm pulley side upwards; thereafter turn detection lever pos. 24 anti-clock-wise so that swing wheel pos. 51 graps in the cam of pos. 26; push and hold roller pos. 8 to the left *and* the guiding/lever pos. 14/15 to the right *simultaneously* and turn pos. 8 anti-clockwise until locking left pos. 27 moves to the right.
- As soon as pos. 27 moves to the right, the drive assy can be taken out.
- When re-assembling, *use new springs for pos. 17, 22 and 48!*

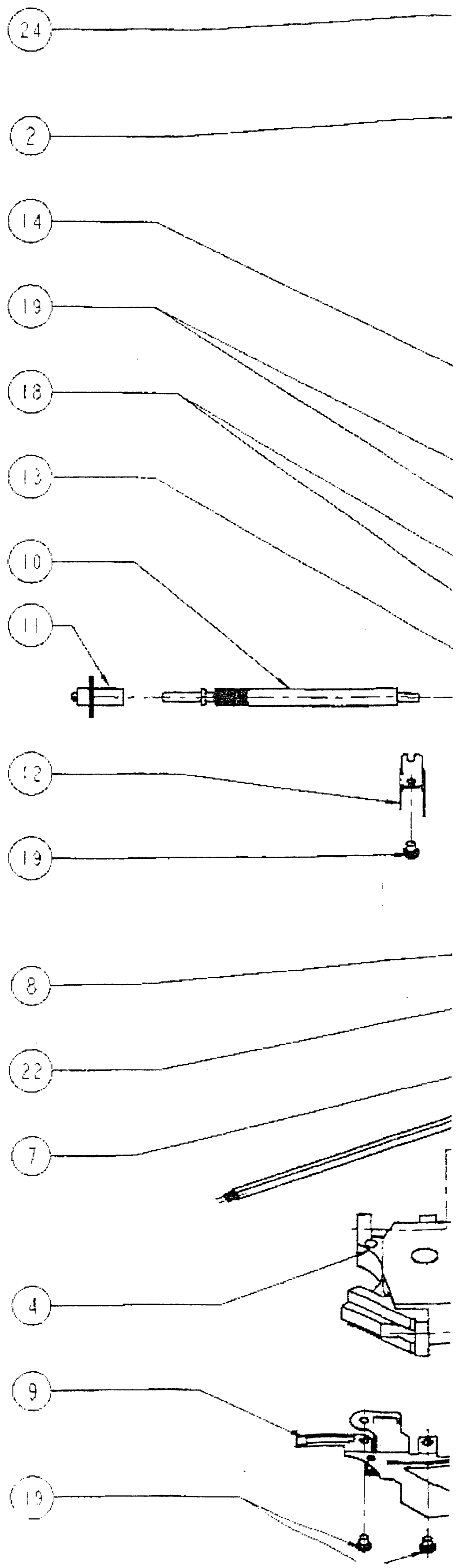
Important: *After re-assembling,* ***DON'T FORGET*** *to remove the solder bridge from the pick-up unit pos. 4!*

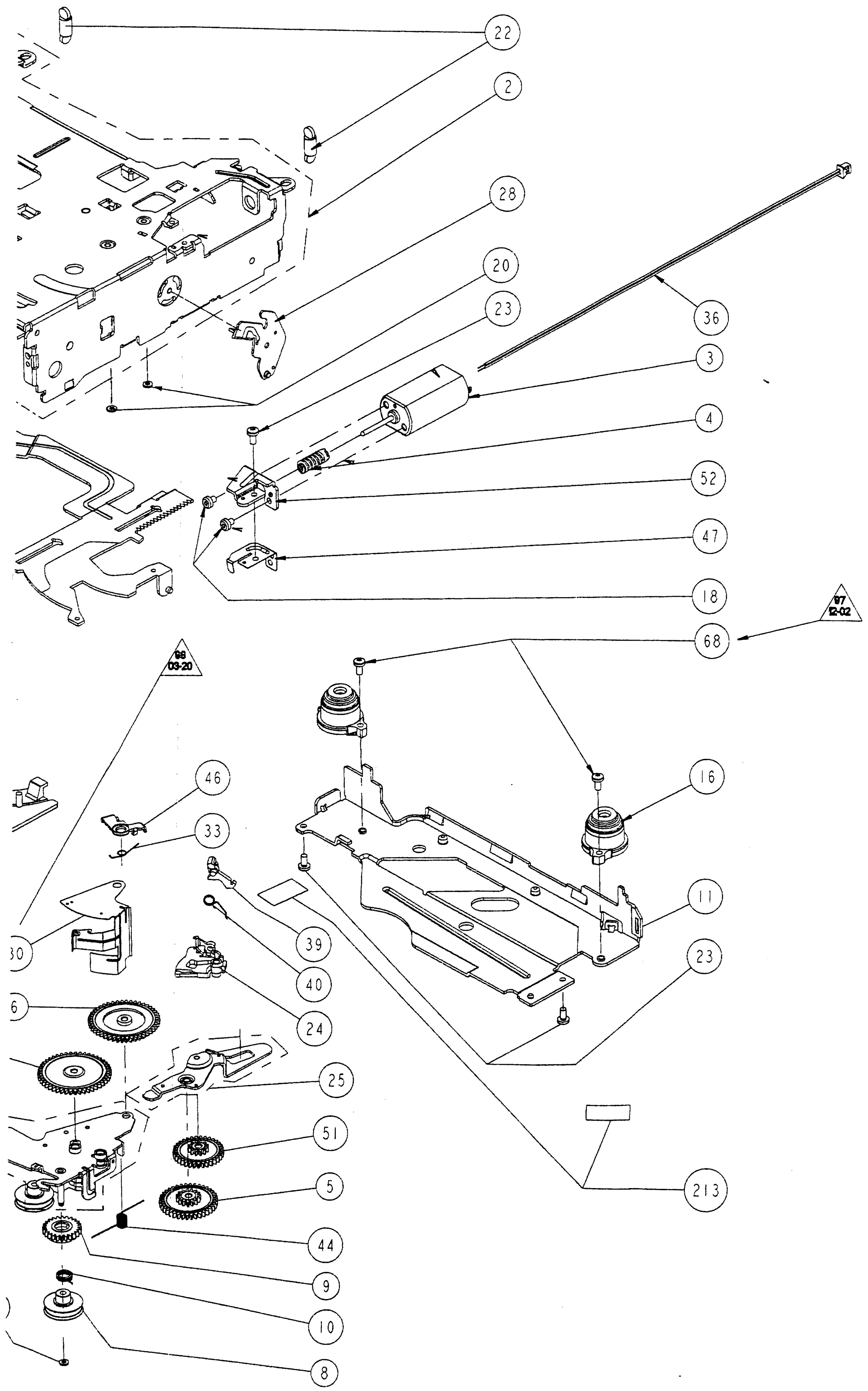
7. EXPLODED VIEWS

7.1 Exploded view changer mechanism

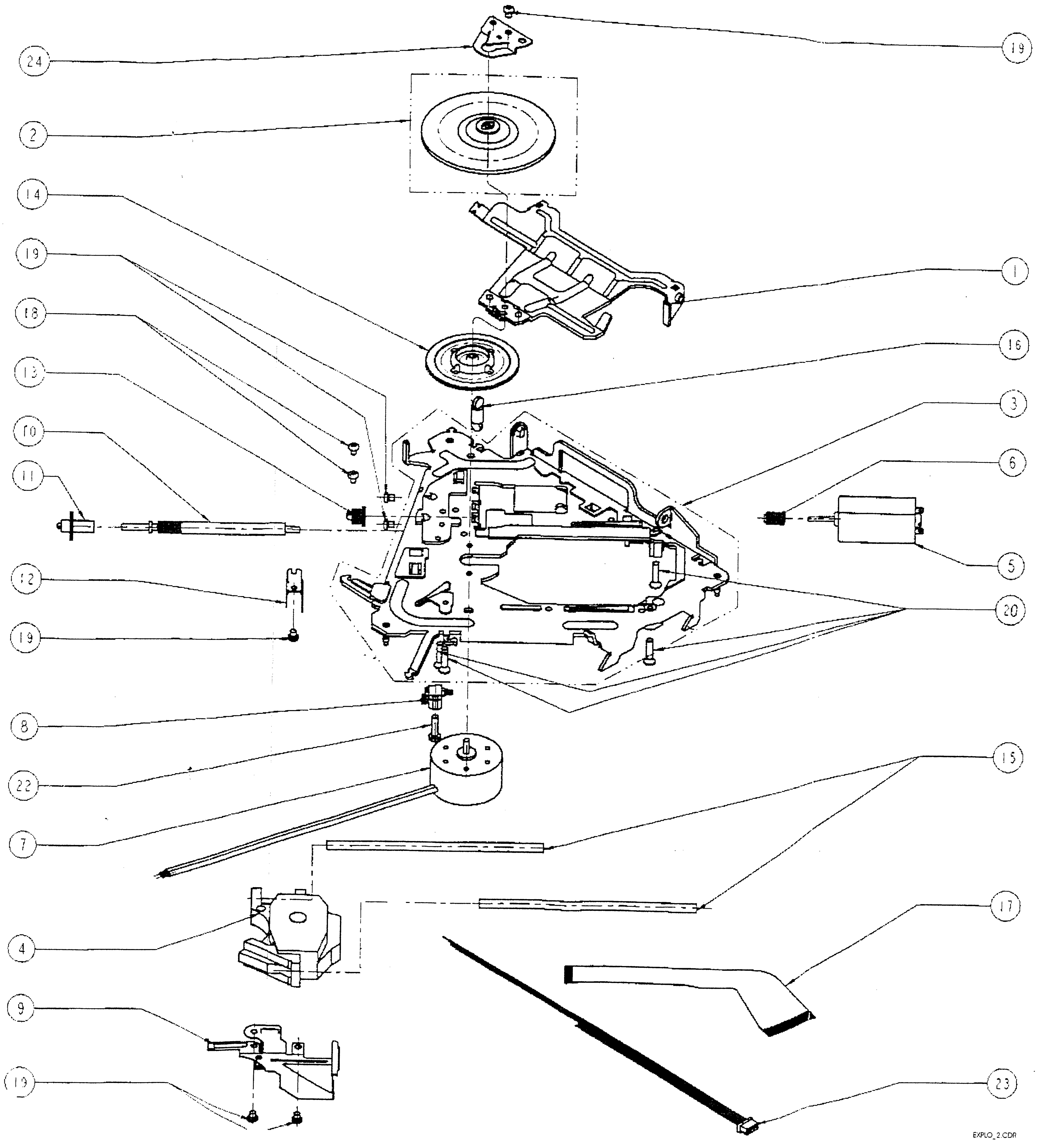

250
66
22
58
2
67
20
28
29
41
20
23
36
43
3
4
26
52
47
27
18
97 12-02
68
55
98 03-20
57
16
46
54
33
15
11
53
39
14
30
40
23
6
45
24
97 12-02
7
13
25
23
68
48
19
51
17
213
5
44
9
20
31
10
1
12
8
38
23
EXPLO_1.AI

7.2 Exploded view pick-up unit

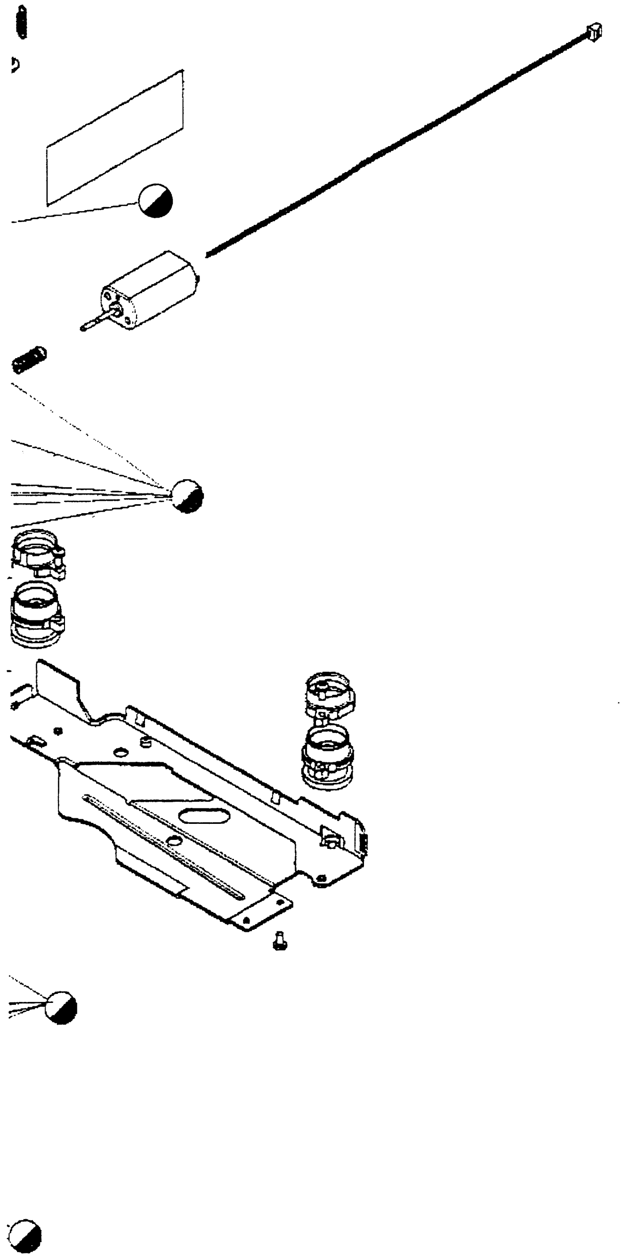

24
2
14
19
18
13
10
11
12
19
8
22
7
4
9
19

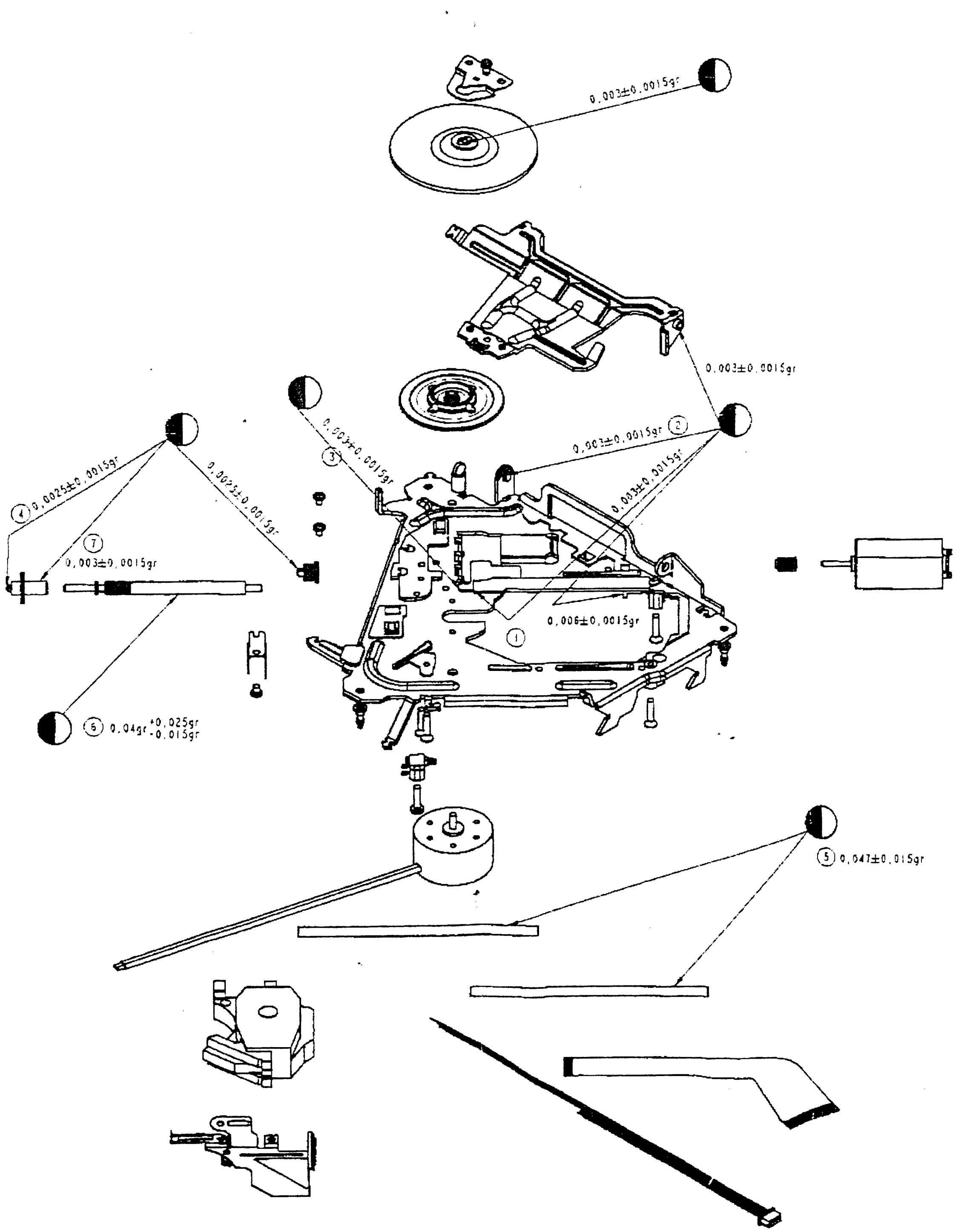

22
2
28
20
23
36
3
4
52
47
18
68
97
12-02
98
03-20
46
33
16
11
39
40
24
23
30
6
25
51
5
44
9
10
8
213
EXPLO_1.AI

7.2 Exploded view pick-up unit


19
24
2
14
1
19
18
13
16
10
3
11
6
12
5
20
19
8
22
15
7
17
4
9
19
23
EXPLO_2.CDR

8.1 Lubrication overview pick-up unit




0,003±0,0015gr
0,003±0,0015gr
0,003±0,0015gr ②
0,003±0,0015gr
0,003±0,0015gr ③
④ 0,0025±0,0015gr
0,0025±0,0015gr
⑦ 0,003±0,0015gr
0,006±0,0015gr
①
⑥ 0,04gr +0,025gr -0,015gr
⑤ 0,047±0,015gr

① Bearing point of the feed gear assy
on the side of the sledge motor.
② The grease is put on the bearing point of the pressure plate.
③ The axle of the drive gear.
④ The grease is put on the bearing point of the feed gear assy.
on the side of the sledge motor (①)
⑤ Instead of the OPU we grease the surface of
the main pick shafts by using a special equipment.
⑥ We grease the surface of the feed gear. In this way
the grease disperses better on the length of the
feed gear.
⑦ After mounting

⊕ Grease Paste 805 K Gleitmo (1312 505 03101)

◒ Grease L 30 TF (1304 523 17601)

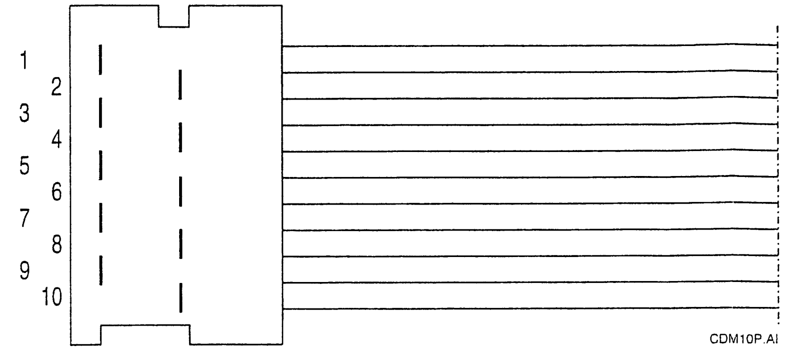
EXPLO_3.CDR

97 09-09 completely changed and
komplett geaendert und
3rd release
3. Feldfreigabe

◐ Molykote
PG - 602 (1304 501 09801)

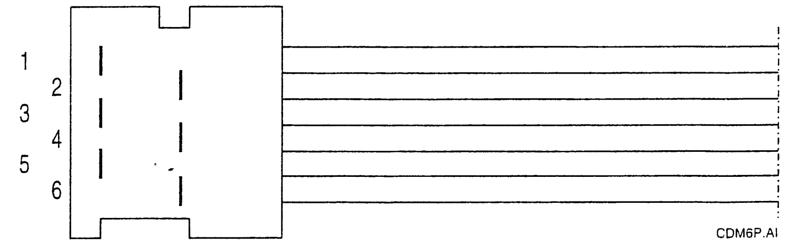
EXPLO_4.CDR

9.2 Connections CDM-M2/1.1-1


1
2
3
4
5
6
7
8
9
10
CDM10P.AI

11 POLE CONNECTOR

Pin	Signal
1	INSERT SWITCH
2	GROUND
3	+ 5VDC (ANAL.)
4	SERIAL CLOCK - SCL
5	SERIAL DATA - SDA
6	BUS REQUEST - CRQ
7	+ 5VDC (DIG.)
8	µP RESET - CRST
9	NOT USED
10	NOT USED

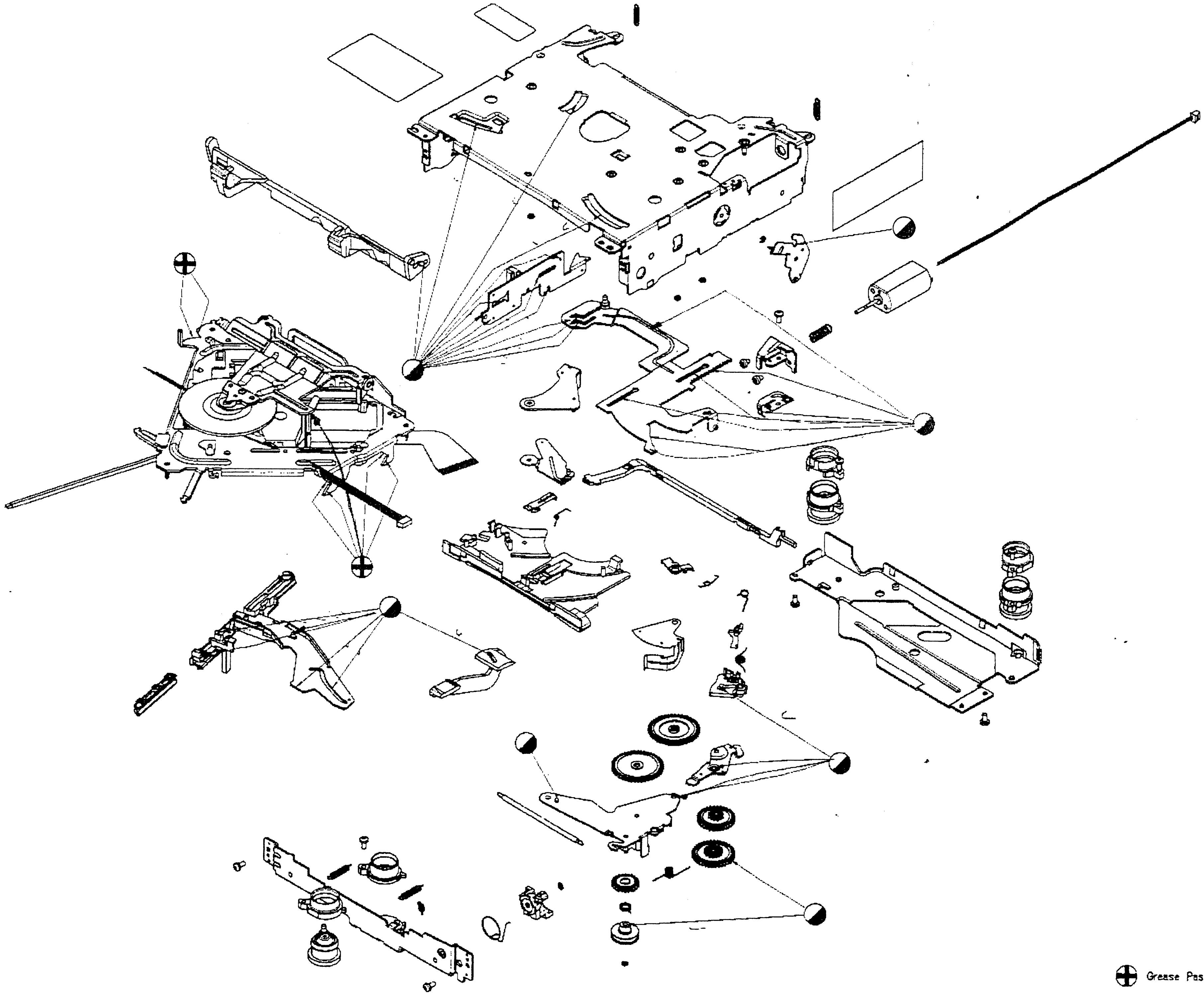

1
2
3
4
5
6
CDM6P.AI

6 POLE AUDIO CONNECTOR

Pin	Signal
1	AUDIO GROUND
2	AUDIO RIGHT CHANNEL
3	AUDIO GROUND
4	AUDIO LEFT CHANNEL
5	AUDIO GROUND
6	NOT USED

8. LUBRICATION OVERVIEWS

8.1 Lubrication overview changer mechanism

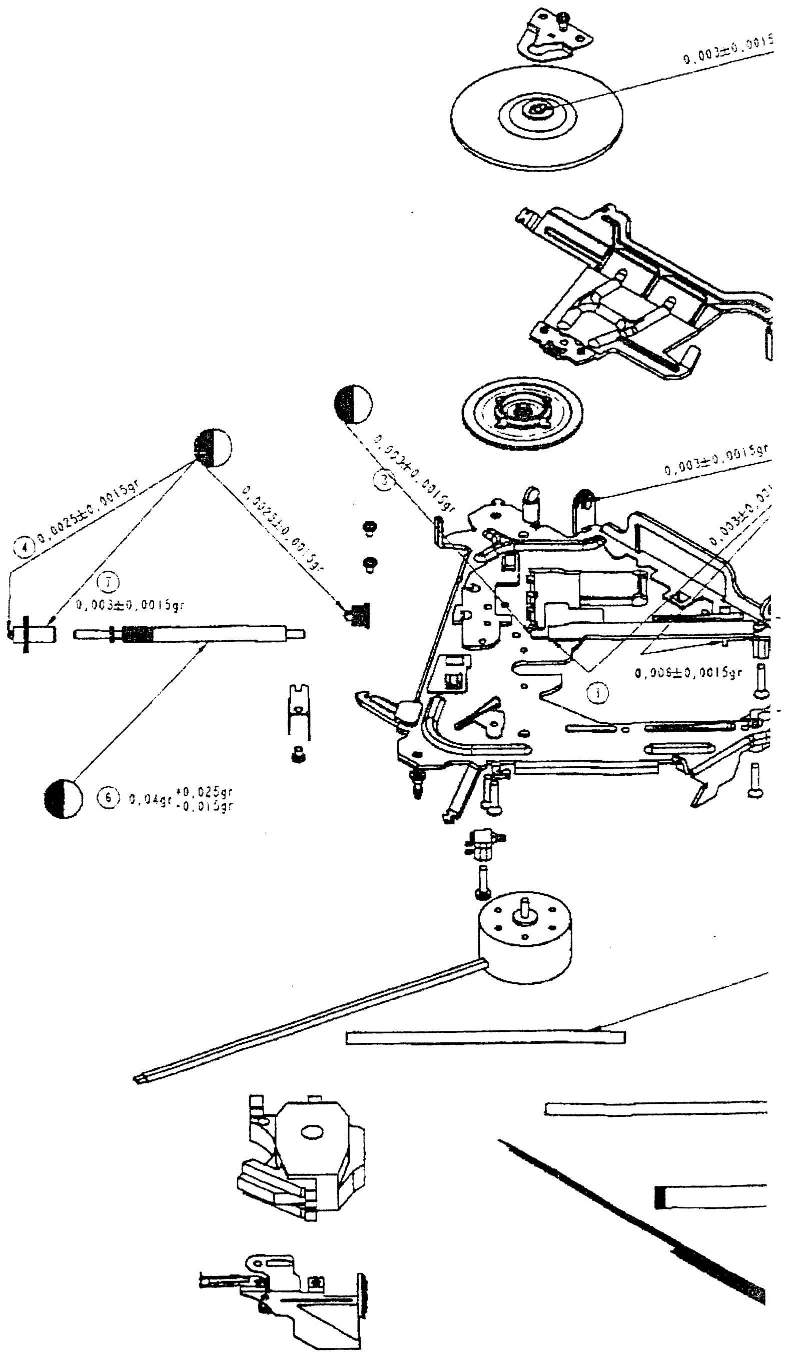


⊕ Grease Paste 805 K Gleitmo (312 505 03101)

◑ Grease L 30 TF (304 523 76011)

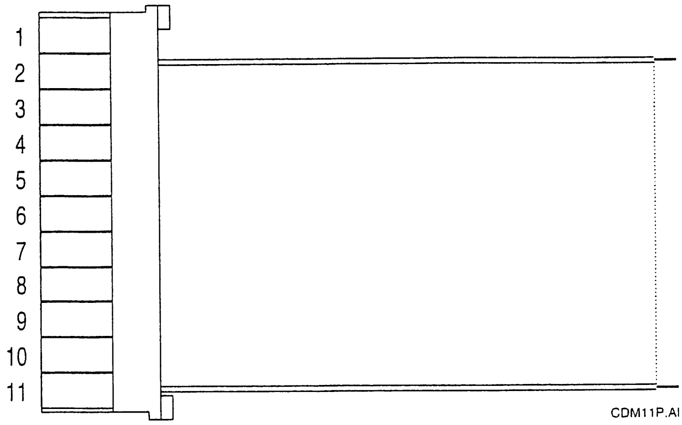
EXPLO_3.CDR

8.1 Lubrication overview pick-up unit


0,003±0,0015
0,003±0,0015gr
④ 0,0025±0,0015gr
⑦ 0,003±0,0015gr
0,0025±0,0015gr
③ 0,003±0,0015gr
0,003±0,0
0,006±0,0015gr
①
⑥ 0,04gr +0,025gr -0,015gr

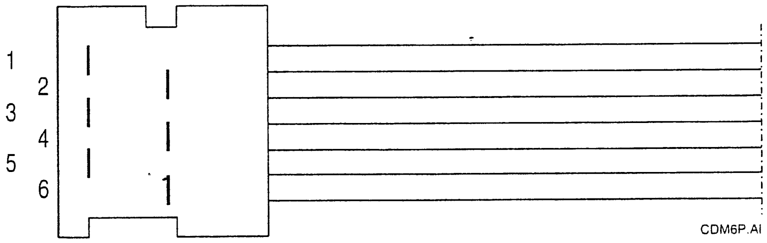
9. CONNECTIONS OVERVIEW

9.1 Connections CDM-M2/1.1/1.1R


1
2
3
4
5
6
7
8
9
10
11
CDM11P.AI

11 POLE CONNECTOR

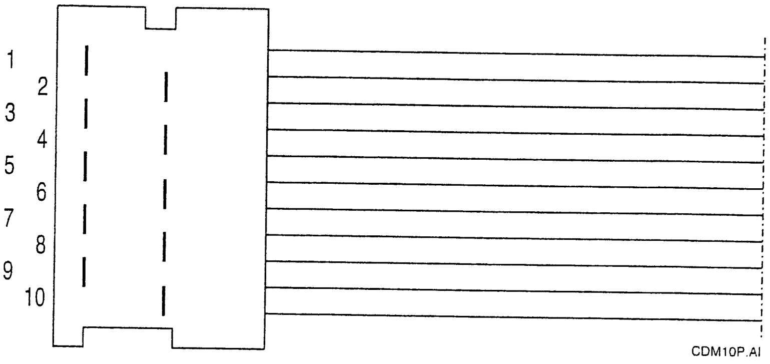
Pin	Signal
1	N.C.
2	INSERT SWITCH
3	GROUND
4	+ 5VDC (ANAL.)
5	SERIAL CLOCK - SCL
6	SERIAL DATA - SDA
7	BUS REQUEST - CRQ
8	+ 5VDC (DIG.)
9	µP RESET - CRST
10	GROUND
11	NOT USED


1
2
3
4
5
6
CDM6P.AI

6 POLE AUDIO CONNECTOR

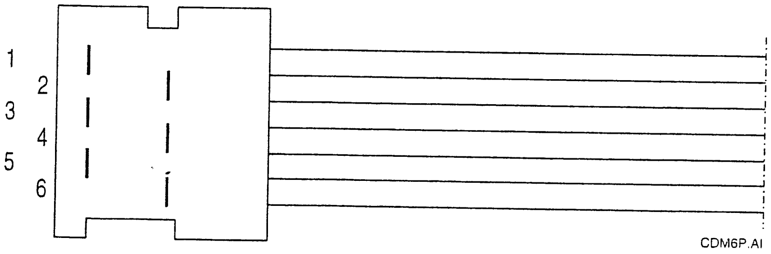
Pin	Signal
1	AUDIO GROUND
2	AUDIO RIGHT CHANNEL
3	AUDIO GROUND
4	AUDIO LEFT CHANNEL
5	AUDIO GROUND
6	NOT USED

9.2 Connections CDM-M2/1.1-1


1
2
3
4
5
6
7
8
9
10
CDM10P.AI

11 POLE CONNECTOR

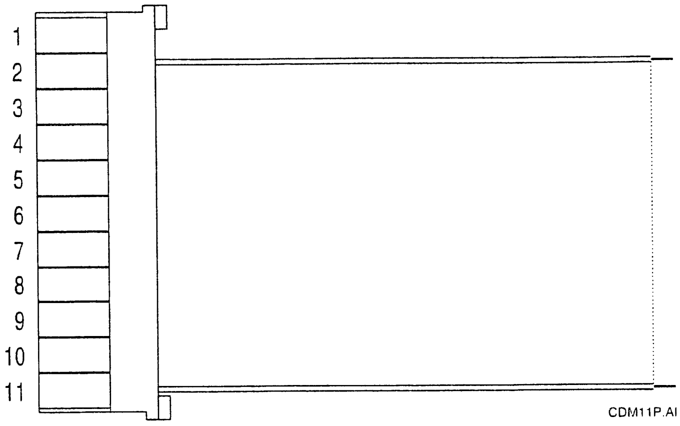
Pin	Signal
1	INSERT SWITCH
2	GROUND
3	+ 5VDC (ANAL.)
4	SERIAL CLOCK - SCL
5	SERIAL DATA - SDA
6	BUS REQUEST - CRQ
7	+ 5VDC (DIG.)
8	µP RESET - CRST
9	NOT USED
10	NOT USED


1
2
3
4
5
6
CDM6P.AI

6 POLE AUDIO CONNECTOR

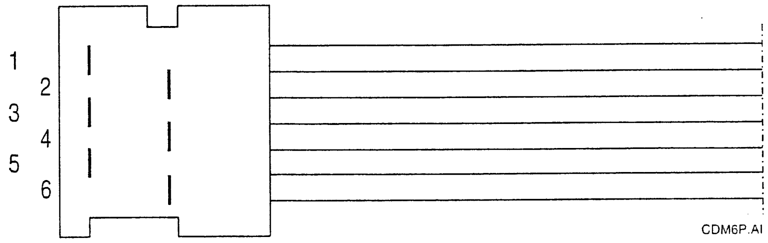
Pin	Signal
1	AUDIO GROUND
2	AUDIO RIGHT CHANNEL
3	AUDIO GROUND
4	AUDIO LEFT CHANNEL
5	AUDIO GROUND
6	NOT USED

9.3 Connections CDM-M2/1.2


1
2
3
4
5
6
7
8
9
10
11
CDM11P.AI

11 POLE CONNECTOR

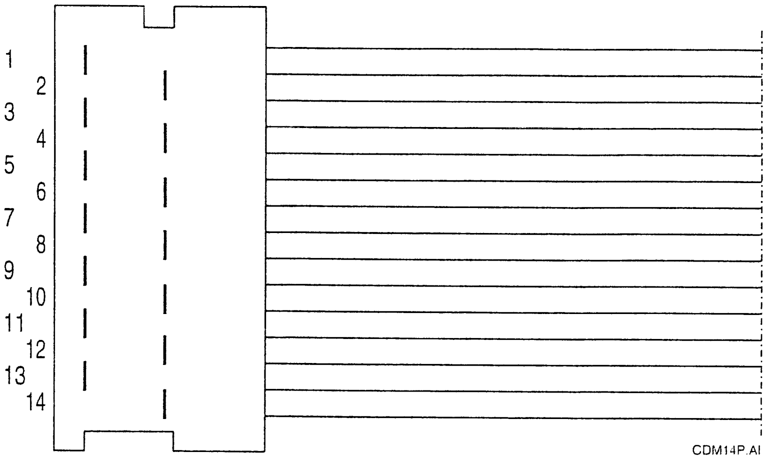
Pin	Signal
1	N.C.
2	INSERT SWITCH
3	GROUND
4	+ 5VDC (ANAL.)
5	SERIAL CLOCK - SCL
6	SERIAL DATA - SDA
7	BUS REQUEST - CRQ
8	+ 5VDC (DIG.)
9	µP RESET - CRST
10	GROUND
11	NOT USED


1
2
3
4
5
6
CDM6P.AI

6 POLE DATA CONNECTOR

Pin	Signal
1	DIGITAL GROUND
2	SERIAL BIT CLOCK - SCLK
3	DIGITAL GROUND
4	SERIAL DATA
5	WORD CLOCK - WCLK
6	NOT USED

9.4 Connections CDM-M2/2.3


1
2
3
4
5
6
7
8
9
10
11
12
13
14
CDM14P.AI

14 POLE CONNECTOR

Pin	Signal
1	INSERT SWITCH
2	GROUND
3	+ 14VDC (SWITCHED)
4	SERIAL CLOCK - SCL
5	SERIAL DATA - SDA
6	BUS REQUEST - CRQ
7	+ 5VDC (DIG.)
8	µP RESET - CRST
9	GROUND
10	SERIAL BIT CLOCK - SCLK
11	GROUND
12	SERIAL DATA
13	WORD CLOCK - WCLK
14	ERROR FLAG - EF

10. PARTS LIST

Notes: For the exploded views, refer to page 3.

The CDM-M2 is subdivided into the following main parts:
CD loader mechanism, drive (pick-up) unit, pcb and cable set.
However, the detailed exploded views both of the changer mechanism and the pick-up unit are inserted for completeness purposes and to clarify the maintenance – and disassembly procedures.

10.1 CDM-M2 mechanical parts

	4822 691 10712	Loader assy complete
23	4822 502 12001	Screw M2x4
	4822 310 11146	Spring kit for drive
38	4822 502 12795	Screw M2,5x6
43	4822 691 10715	Drive assy

	4822 691 10662	CDM-M2/1.1 complete (with pcb/packed)
	4822 691 10729	CDM-M2/1.1-1 complete (with pcb/packed)
	4822 691 10731	CDM-M2/1.1R complete (with pcb/packed)
	4822 691 10694	CDM-M2/1.2 complete (with pcb/packed)
	4822 691 10732	CDM-M2/2.3 complete (with pcb/packed)

10.2 CDM-M2 electrical parts

37	4822 214 12799	PWB assy CDM-M2/1.1/1.1
59	4822 320 12344	Cable assy CDM-M2/1.1/1.1R/1.2, 10-pole spox
60	4822 320 12345	Cable assy CDM-M2/1.1/1.1-1/1.1R/1.2, 6-pole picoflex
61	4822 214 12764	PWB assy digital CDM-M2/1.2
62	4822 214 12766	PWB assy CDM-M2/1.1R

63	4822 214 12801	PWB assy CDM-M2/2.1
65	4822 320 12347	Cable assy CDM-M2/1.1-1, 10-pole picoflex
69	4822 214 12763	PWB assy digital CDM-M2/2.3
70	4822 320 12346	Cable assy CDM-M2/2.3, 14-pole micromatch